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American Petroleum Institute
1220 L Street, Northwest
Washington, D.C. 20005

Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 11, No. 10

NOVEMBER 18, 1987

OCTOBER 1987

SUMMARY

Total deliveries for October, up 1.9 percent over a year ago, were about in line with consumption trends—but individual products were not so consistent. Gasoline deliveries, after rising at well above the trend in September, declined slightly in October. But distillate deliveries rose over 8 percent, partly because of an unusually cold month, and kerosine jet fuel's increase was almost twice as large as that for distillates. These swings in deliveries are unlikely to represent changes in actual consumption of the same magnitude, even allowing for the effect of chilly weather on heating oil demand in the case of distillates. Residual fuel oil's nearly 13 percent drop, however, continued the familiar pattern of declines experienced for most of the year, while deliveries in the "other oils" category rose about 1 percent.

Start-up of Endicott production, almost a decade after its discovery, gave Alaskan production a small boost in October, but lower 48 production continued to show large declines compared with early 1986. Because of the decline in domestic production and rise in consumption, imports so far this year have amounted to almost 40 percent of total deliveries, the highest level since 1980 for a similar ten-month period. October's imports, at close 7 million B/D, continued the high levels of recent months but were nevertheless not enough to contribute to any stockbuilding during the month. Inventories of major products fell, but an increase in crude oil stocks of over 16 million barrels kept October's inventories about even with those at the beginning of the month. As a result of their increase, crude oil stocks ended the month higher than has been common during the past several years.

PRODUCT SUPPLIED [1/]

Motor Gasoline

DELIVERIES SWINGS MASK STEADY RISE IN CONSUMPTION. Gasoline deliveries' growth rate has been vacillating in the past several months—weak in August, above-trend in September, and now down half a percent for October—but underlying consumption growth appears to be continuing, though perhaps at a somewhat slower rate. Highway travel has been rising roughly 3.5 percent year-to-year in recent months, down from the 4.5 percent average increase of the first four months of this year. With an increase in average fleet fuel efficiency of from 1 to 2 percent, however, this still implies that gasoline consumption has been rising somewhere between 1.5 and 2.5 percent—about in line with the year-to-date growth in deliveries.

Premium unleaded's share, after rising about 5 percentage points during last year, has apparently stabilized at about one fifth of the market this year. The increasing availability of midgrade unleaded has provided an alternative for motorists seeking higher octane gasoline than regular unleaded and may have cut into premium's growth to some extent. Meanwhile, the market share of unleaded grades as a whole has continued to rise, and October's year-to-year gain in share of 6.6 points, to 76.8 percent, is typical of recent increases.

Distillates

COLD WEATHER, RAIL AND TRUCK TRAFFIC BOOST DELIVERIES. Another strong gain for distillate deliveries in October followed September's large increase. About a third of the 243 thousand B/D, 8.3 percent increase can be explained by unusually cold weather in the East and Midwest—from 30 to 50 percent colder than last yeaf in some regions. (The relatively low number of heating degree days typical for the month is at least partially responsible for the large swings in percentage terms.)

There was continued strength in transportation use, with truck traffic up over 7 percent in September (the latest available). Coal stockpiling in anticipation of a possible strike, in combination with increases for other commodities, helped to boost rail traffic by about 8 percent in October. These increases in truck and rail traffic may have added 80 to 90 thousand B/D to deliveries for the month. Much of the remaining 80 thousand B/D or so of October's increase likely represents additional buying for inventory by distributors and end users.

API ESTIMATES

	OCTOBER		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.9	1.9	16.5	1.9
Crude oil production[2/]	8.2	(2.1)	8.3	(5.1)
Total imports[3/]	6.9	7.7	6.4	5.4
Stocks (million bbl)[3/]	1,078	(2.2)	na	na

Residual Fuel Oil

YEAR-TO-YEAR DROP CONTINUES. Residual fuel oil continued its familiar pattern of deliveries declines in October, falling 12.5 percent or nearly 160 thousand B/D year to year. On a seasonally adjusted basis, however, the level of deliveries of the past several months has shown little trend, indicating that whatever fuel-switching took place earlier in the year away from residual fuel oil may, for the most part, have levelled off in more recent months.

Increased nuclear generation capacity this year on the East Coast, where most of electric utility usage of residual fuel oil takes place, has, along with attractively-priced natural gas, edged out residual fuel oil in many cases. As a result, nuclear generation accounts for over 27 percent of this year's January-to-July electricity generation on the East Coast, up from 25 percent a year ago. The region's petroleum share, falling by a similar amount, comes to only 12 percent so far this year. The share of natural gas is up slightly.

Kerosine Jet Fuel

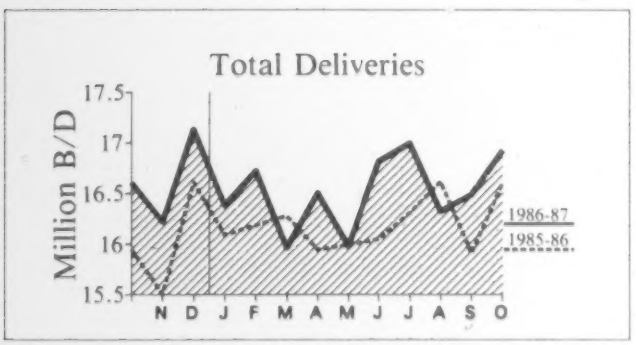
AIR TRAFFIC GROWTH SLOWING RECENTLY. After year-to-year increases of 5 percent or less in the past several months, kerosine jet fuel deliveries jumped ahead by 15 percent in October. Growth in air traffic , however, continues in an estimated 5 to 6 percent range for miles flown, roughly half the rate of increase earlier this year. A revival in international travel from last year's depressed level has been a major contributor to what growth remains in air traffic. For the year to date, data on deliveries and air traffic show a closer relationship—kerosine jet fuel deliveries are up about 6 percent, only a percentage point less than estimated for miles flown. Increased fuel efficiency in the aircraft fleet can easily account for the small difference in growth rates.

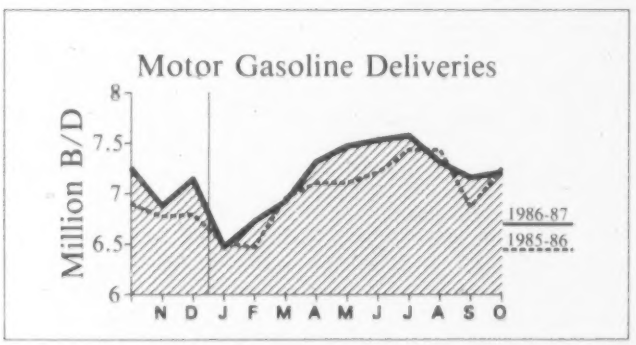
Other Oils

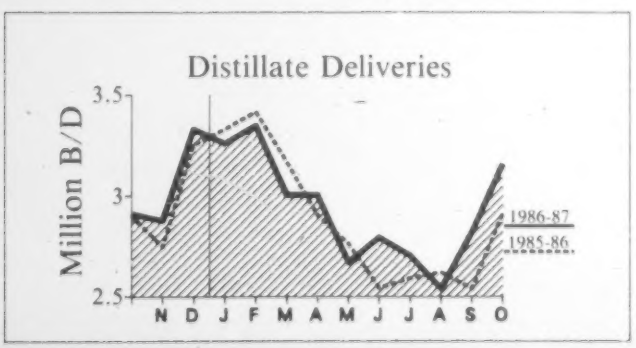
DELIVERIES RISE 1.1 PERCENT. Products supplied in the other oils category for October are estimated to be 4,277 thousand B/D, up 2.2 percent from last month's estimate of 4,184 thousand B/D and 1.1 percent above last year's revised estimate of 4,230 thousand B/D. Much of the increase is due to seasonal factors reinforced by climatic conditions.

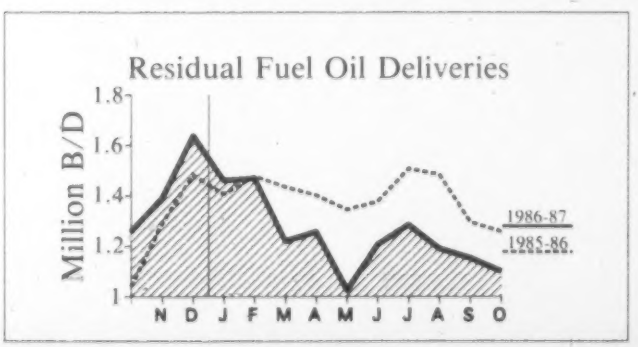
Propane deliveries for space heating were especially strong during the month: colder-than-average weather throughout the Midwest and Northeast stimulated demand for the fuel for both agricultural (e.g. poultry raising for the Thanksgiving holiday) and residential/commercial applications. Kerosine deliveries also registered sizable increases in deliveries in the same regions. Despite the onset of cold weather, asphalt and road oil deliveries continued to be strong as a consequence of last summer's passage of the Federal highway bill as several eastern states continued to accelerate long-delayed road maintenance schedules.

As with last month, propane and naphtha continue to be the preferred petrochemical feedstocks, displacing small amounts of ethane. In general, petrochemical feedstock deliveries have continued to remain stable at present levels, contributing to the moderation of increases in other oils deliveries compared with the first three quarters of the year. Refinery gas production declined significantly from last month to levels of a year ago largely as a result of a 3.4 percent month-to-month decline in motor gasoline production.









SUPPLY [1/]

Production

ENDICOTT ADDS TO ALASKAN PRODUCTION. In Alaska, initial production from the offshore Endicott field, with facilities designed to eventually produce about 100 thousand B/D, gave a small boost to Alaskan production in October, which continued at close to the 2 million B/D mark. Lower 48 production, however, continued to show large declines versus early 1986, down by 1 million B/D or nearly 14 percent.

The history of Endicott's development provides one example of the time-consuming process of bringing on new production in frontier regions. Though the field was discovered almost a decade ago, further exploratory work was necessary before a decision to develop it could be made in 1981, and it took until 1985 to gain necessary permits and approvals. Actual development work had been under way since then.

Third quarter well completions experienced the first year-to-year increase since last year's major crude oil price decline, according to API's latest *Quarterly Completion Report*. Preliminary estimates of third quarter drilling, however, remained at only half of that for the same period two years ago, and with year-to-date efforts still down 20 percent from the similar 1986 period—a year in which new reserves replaced only about half of domestic production—it is most probable that U.S. crude oil reserves are continuing to decline.

Imports

IMPORTS CONTINUE NEAR 7 MILLION B/D. Imports remained at close to 7 million B/D in October, not much less than the recent-year record of 7.4 million B/D in July. Even so, October's level of imports was not high enough to support inventory building, since total inventories only held steady for the month. For the year to date, imports have risen to nearly 40 percent of total deliveries, the highest since 1980. Product imports however, have declined this year in favor of crude oil. A decrease in residual fuel oil imports, paralleling that product's demand decline, accounts for the bulk of the slippage, while imports of gasoline and distillates are still up slightly over the year-ago period.

For October, imports of gasoline and components, at 433 thousand B/D, were up about 30 thousand B/D from a year ago, an increase less than the 60 to over-100 thousand B/D increases of recent previous months; distillate imports also rose about 30 thousand B/D while residual fuel oil imports continued their year-to-year decline with a nearly 190 thousand B/D loss.

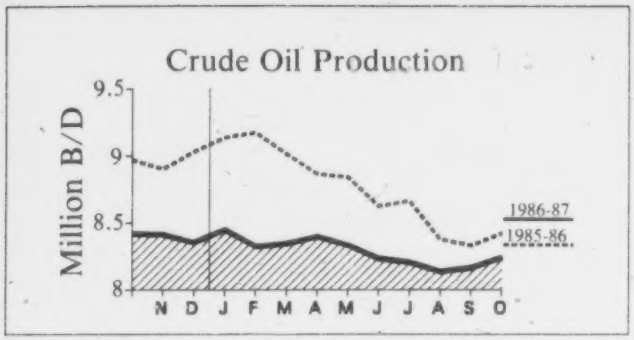
Refinery Operations

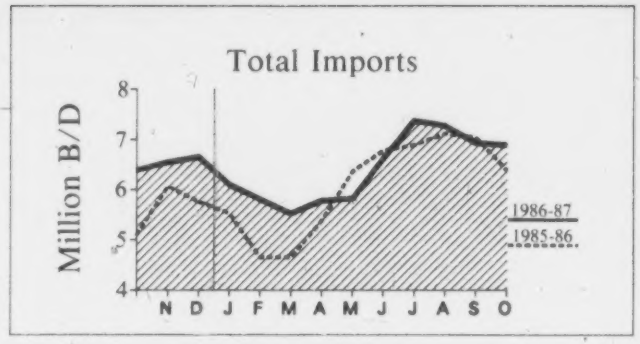
DISTILLATE OUTPUT UP 2 PERCENT FROM LAST OCTOBER. Distillate yields which were up slightly from a year ago helped to translate the 0.7 percent rise in input to distillation units for October into a 2 percent increase in distillate production. Production of gasoline was also up slightly, while residual oil from domestic refineries continued to edge out imports with a 7 percent production gain over last October, when heavy fuel oil yields were unusually low. Despite the increase in refinery runs, October's utilization rate dropped 0.8 percentage point from a year ago because of somewhat higher refining capacity.

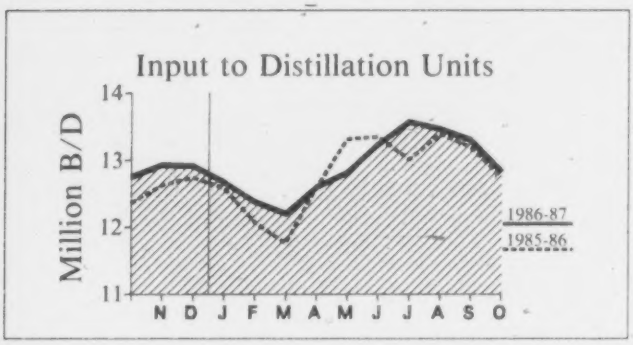
Inventories

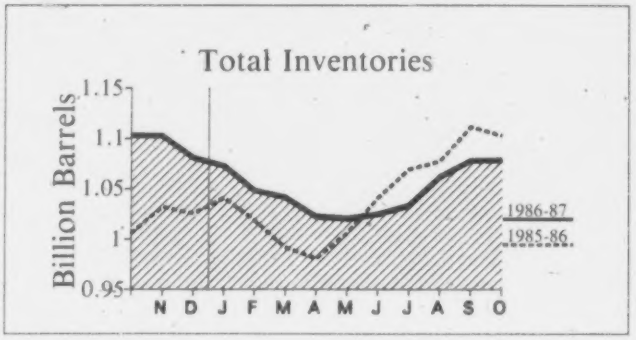
CRUDE OIL STOCK INCREASE BALANCES PRODUCTS' DECLINE. Total inventories remained nearly steady in October, the over 16 million barrel increase in crude oil stocks roughly equalling the decline for products.

Motor gasoline stocks fell 10 million barrels but ended the month close to the year-ago level; if the month's increase in distillate deliveries had been more in line with longer run consumption trends, inventories of that product, rather than declining 5 million barrels, would have held steady or increased slightly. While stocks of major products were declining, crude stocks rose to over 350 million barrels, a level higher than usual compared with the last several years. A reduction in refinery input of about half a million B/D from September's levels—not unusual at this time of year—combined with crude oil imports continuing in the 5 million B/D range were responsible for crude oil stocks' rise.









1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 536 million barrels as of October 31, 1987).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	OCTOBER			YEAR-TO-DATE		
	1987[1]	1986[2]	% Change	1987[3R]	1986[2]	% Change
Products Supplied:						
Total motor gasoline	7,213	7,250	(0.5)	7,171	7,038	1.9
Finished leaded motor gasoline*	1,673	2,164	(22.7)	1,769	2,225	(20.5)
Finished unleaded motor gasoline*	5,540	5,086	8.9	5,402	4,813	12.2
Naphtha-jet	206	207	(0.5)	205	201	2.0
Kerosine-jet	1,226	1,066	15.0	1,149	1,085	5.9
Distillate fuel oil	3,155	2,912	8.3	2,925	2,876	1.7
Residual fuel oil	1,101	1,259	(12.5)	1,235	1,399	(11.7)
All other oils[4]	4,277	4,230	1.1	4,057	3,909	3.8
Reclassified[5]	- 256	- 322	(20.5)	- 239	- 308	(22.4)
Total domestic products supplied	16,922	16,602	1.9	16,503	16,200	1.9
Exports	668	831	(19.6)	738	777	(5.0)
Total products supplied	17,590	17,433	0.9	17,241	16,977	1.6
Supply:						
Domestic production:						
Crude oil[6]	8,240	8,419	(2.1)	8,290	8,740	(5.1)
Natural gas liquids	1,608	1,477	8.9	1,598	1,547	3.3
Other supply[7]	870	868	0.2	928	856	8.4
Total domestic supply	10,718	10,764	(0.4)	10,816	11,143	(2.9)
Imports:						
Crude oil, total	4,978[10/]	4,382[10/]	13.6	4,529[10/]	4,063[10/]	11.5
Canadian	660	592	11.5	621	563	10.3
Other	4,318	3,790	13.9	3,908	3,500	11.7
Products, total	1,907	2,008	(5.0)	1,888	2,028	(6.9)
Residual fuel oil	449	635	(29.3)	548	653	(16.1)
Other	1,458	1,373	6.2	1,340	1,375	(2.5)
Total imports	6,885	6,390	7.7	6,417	6,091	5.4
Total supply	17,603	17,154	2.6	17,233	17,234	-
Stock change, all oils	+ 13	- 279	XXXX	- 8	+ 257	XXXX
Refinery Operations						
Input to crude oil distillation units	12,836	12,753	0.7	12,910	12,807	0.8
Operable capacity	15,697	15,435	1.7	15,670	15,462	1.3
Refinery utilization (%)[8]	81.8%	82.6%	(1.0)	82.4%	82.8%	(0.5)
Crude oil runs	12,743	12,636	0.8	12,813	12,698	0.9

Stocks (millions bbls.)	1987		1986[2]	% Change from ...	
	Oct. 31[9]	Sep. 30[9]	Oct. 31	Previous Month	Year Ago
Crude oil[10/]	351.1	334.7r/	343.9	4.9	2.1
Unfinished oils	103.4	103.2r/	101.3	0.2	2.1
Total motor gasoline**	219.5	229.4r/	222.4	(4.3)	(1.3)
Finished leaded motor gasoline*	51.7	54.7	64.8	(5.5)	(20.2)
Finished unleaded motor gasoline*	130.4	135.3r/	119.7	(3.6)	8.9
Naphtha-jet	6.7	6.5	6.8	3.1	(1.5)
Kerosine-jet	42.9	43.6r/	43.9	(1.6)	(2.3)
Distillate fuel oil	124.1	128.9r/	151.6	(3.7)	(18.1)
Residual fuel oil	46.7	45.1	45.8	3.5	2.0
All other oils	184.0	186.6r/	187.2	(1.4)	(1.7)
Total all oils	1,078.4	1,078.0r/	1,102.9	-	(2.2)

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: January-August, U.S. Department of Energy, September-October, API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

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Prepared by the Finance, Accounting, and Statistics Department

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DECEMBER 16, 1987

NOVEMBER 1987

SUMMARY

This year's growth in petroleum deliveries, at least when all products are taken as a whole, is turning out to be lower than last year's 3.5 percent increase—an increase that had been spurred in part by that year's large decline in petroleum prices. Including November's 2.6 percent, 423 thousand B/D increase, this year's year-to-date rise for deliveries comes to 2.0 percent, off by more than a third from the 1986 climb—although about double what most analysts had expected.

But for products other than residual fuel oil, whose large fuel-switching-related swings have partially obscured underlying trends, no slowdown has been evident. Last year's growth in deliveries, excluding residual fuel oil, averaged 2.3 percent; for the first eleven months of 1987, the comparable increase has been almost 1 percent more. This year's higher rate represents a continuation of the growth patterns of second-half 1986, when the effects of lower prices were beginning to penetrate petroleum markets.

November's increase in total deliveries was above the average for the year to date largely because of a continuation of the unusually strong distillate deliveries of the past several months. Despite weather warmer than last year, distillate deliveries rose over 6 percent from a year ago, indicating likely continued inventory building by distributors and end users. Meanwhile, gasoline deliveries were closer to consumption trends than they have been in recent previous months, kerosine jet fuel was weak after October's unusually large increase, and deliveries in the "other oils" category remained strong.

Because of record Alaskan output, total U.S. crude oil production in November reached the highest level since May. However, lower 48 production slipped to another recent-year low and left the total domestic decline since early 1986 at about 900 thousand B/D. Imports in November rose from the prior month to 7.1 million B/D, still only slightly short of July's 7.4 million B/D, recent-year record.

Though refinery runs, too, rose from October's levels, crude oil stocks increased another 6 million barrels to the highest month-end level in several years. Distillate production, at 3.0 million B/D, was up 3.3 percent over last November and at the second highest level for that month for the past eight years. This, despite the strength in deliveries, helped to raise primary distillate inventories by 3 million barrels for the month to 127 million barrels. November's distillate stocks were lower than the recent previous November low in 1985 by about 13 million barrels, a quantity less than what has apparently been added to nonprimary storage over the past three months.

PRODUCT SUPPLIED [1]

Gasoline

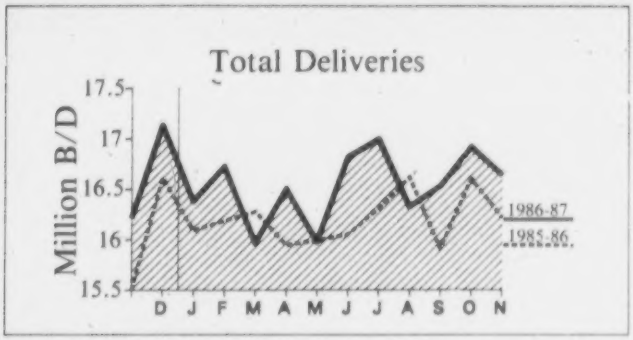
DELIVERIES' RISE CLOSE TO RECENT TRENDS IN USAGE.

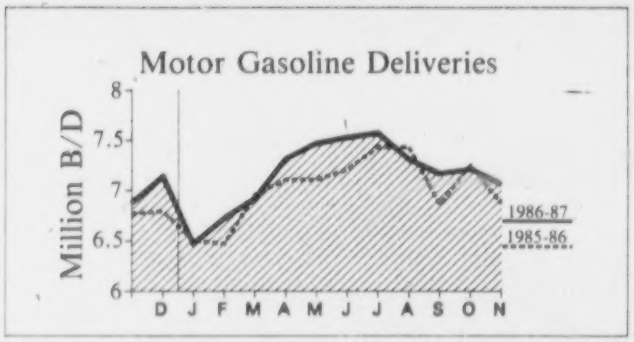
After vacillating around the underlying growth trend for the past several months, gasoline deliveries' 2.7 percent November increase came close to the estimated 2 percent growth rate in consumption. Consumption growth would be larger, were it not for the continued replacement of older vehicles with more fuel-efficient models. Even though the improvement in mileage ratings of new vehicles has been slowing in recent years, the gap between these and the existing fleet is still substantial, so that the turnover of the vehicle fleet is continuing to keep gasoline consumption growing at a rate 1 to 2 percent less than the growth in miles travelled.

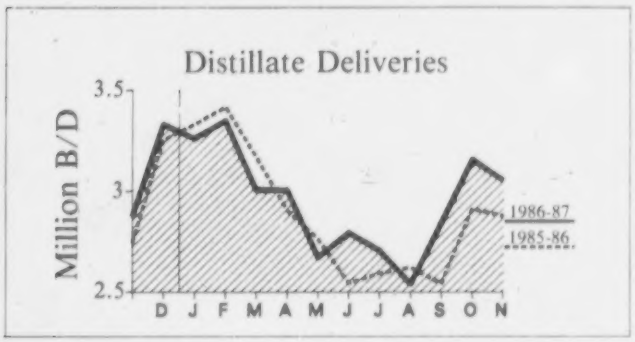
In addition to the growth in household gasoline consumption this year, the non-household sector, which accounts for about one fifth of the total, has also been contributing to this year's increase. Travel in this sector—including wholesale and retail trade, services, business fleets, agriculture, and government uses, to name but a few—is estimated to be growing about in line with the economy as a whole, making its contribution to this year's gasoline demand growth roughly in proportion to its share of consumption.

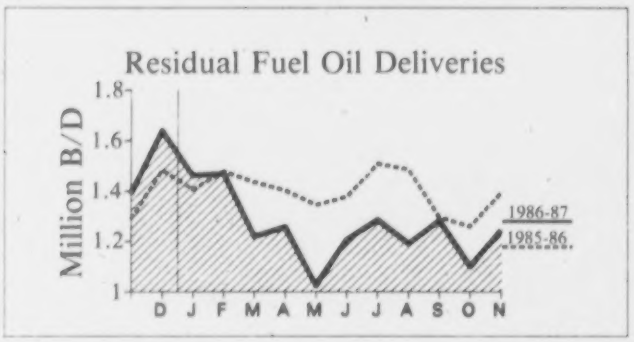
API ESTIMATES

	NOVEMBER		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.6	2.6	16.5	2.0
Crude oil production [2]	8.3	(1.6)	8.3	(4.9)
Total imports [3]	7.1	8.2	6.5	5.7
Stocks (million bbl) [5]	1,080	(2.0)	na	na









Distillates

GROWTH AGAIN SURPASSES LIKELY CONSUMPTION.

For the third month in a row, distillate deliveries' year-to-year growth surpassed any likely increase in consumption with a 6.1 percent, 175 thousand B/D rise—despite warmer weather. November averaged 13 percent warmer than a year ago, reducing heating needs by an estimated 90 to 100 thousand B/D versus last November. Continued increases in usage for highway and rail transportation would have added nearly as much back to this year's total—but leaving most of the month's deliveries increase unexplained by indicated consumption patterns.

As with September's and October's increases, the likely conclusion is that, during November, distributors and end-users continued to add to inventories, inventories which are not included in API or Department of Energy data. Over the past three months, deliveries have risen an average of nearly 9 percent, year to year—or 15 to 20 million barrels more than estimated consumption increases during the period.

Mid-November retail heating oil prices averaged around 87 cents per gallon (ex tax), up about 17 cents compared with a year ago—but still about 22 cents below November, 1985 price levels. These price changes reflect roughly similar changes for crude oil costs. This November, refiners' crude oil costs averaged about 14 cents per gallon higher than last year but 18 cents lower than two years ago.

Residual Fuel Oil

DELIVERIES FALL ALMOST 11 PERCENT.

For November, deliveries of residual fuel oil fell 10.6 percent, year to year, about in line with the year-to-date decline. Though, since mid-summer, residual fuel oil prices had drifted downward by $1.50 to $2.00 per barrel while spot natural gas prices had remained relatively stable, this was not enough to significantly alter November's fuel-usage patterns among electric utilities and industrial users with fuel switching capability. In contrast, last year's lower residual fuel oil prices and higher gas prices put the advantage with residual fuel oil.

Though domestic bunker sales have likely remained flat or even declined slightly in view of the availability of attractively-priced fuel outside the U.S., most of the latest month's decline in residual fuel oil deliveries, as has been the case for most of this year, was within the electric utility sector. So far this year, fuel-switching at utilities has accounted for about two-thirds of the deliveries decline, with industrial substitution accounting for much of the rest.

Kerosine Jet Fuel

AFTER OCTOBER'S SURGE, NOVEMBER DELIVERIES SAG.

The weak performance for kerosine jet fuel in November—up a bare 1.4 percent over the year-ago period—follows an unusually strong October gain estimated at 15 percent. The increase for the two months combined, however, comes somewhat closer to the 5 to 6 percent increase in miles flown that has prevailed in recent months.

Air cargo, though accounting for only about a fifth of total revenue ton-miles, has been contributing to air traffic growth as well. Year-to-year growth for this segment of the industry has amounted to over 10 percent so far this year, with international operations being especially strong.

Other Oils

STRONG CHEMICAL DEMAND BOLSTERS DELIVERIES.

Products supplied in the other oils category for November are estimated to be 4,157 thousand B/D, down 2.8 percent from last month's estimate of 4,277 thousand B/D, but 3.9 percent above last year's revised estimate of 4,001 thousand

B/D. The decline from October is due primarily to the change in weather patterns. Nationally, the month's warmer weather is believed to have resulted in lower than average deliveries of propane and kerosine to the residential and commercial markets. However, strong demand for propane and naphtha as the petrochemical feedstocks of choice, bolstered by increased export demand for their product slates as a result of the continuing decline of the dollar, appears to have accounted for much of the year-to-year increase. In particular, propane and naphtha continue to enjoy unusually high ethylene feedstock margins, despite low ethane prices.

On a seasonally-adjusted basis, we estimate that asphalt and road oil deliveries remain strong, sustaining a trend substantially higher than the average seen during the past several months. In addition, refinery gas production recovered slightly from last month to match that of the previous year as a result of increased gasoline production.

SUPPLY [1/]

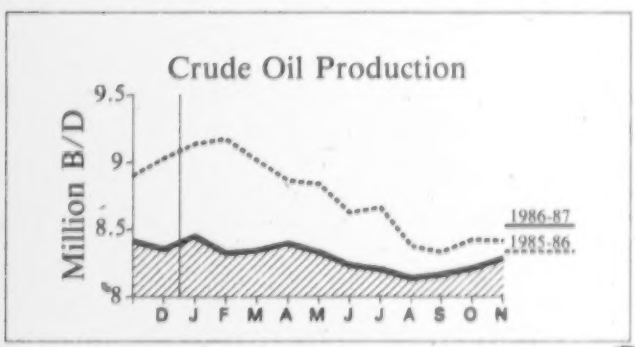
Production

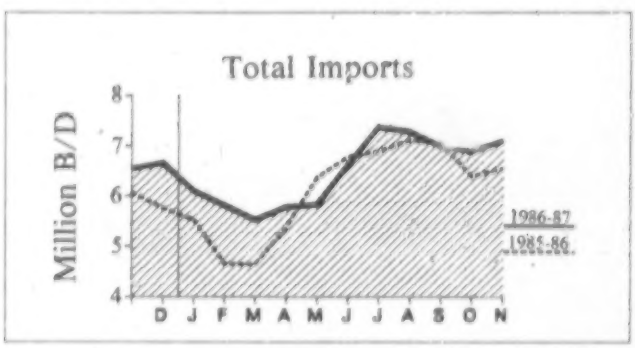
ALASKA, LOWER 48 SET CONTRARY OUTPUT RECORDS. Domestic crude oil production in November reached the highest level since May, but the increase was entirely the result of higher Alaskan output. With the help of projects that have been in the works for several years and have come on stream in the past year or so, including the Lisburne field, additional facilities at Kuparuk, and, more recently, the Endicott field, Alaskan production has been inching upwards. November's production of nearly 2.1 million B/D, amounting to one fourth of total U.S. crude output, set a new record for the state.

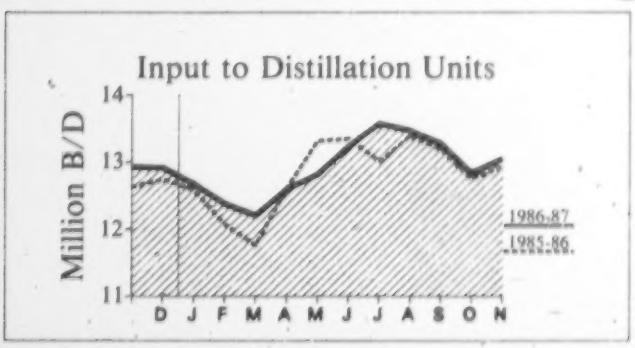
November's increase for Alaska was accompanied by less positive news for the rest of domestic production—the lower 48 again reached a new, recent-year low of about 6.2 million B/D and continued at levels not experienced in more than thirty years. As a result, despite stable Alaskan output, November's crude oil production for the U.S. as a whole was still about 900 thousand B/D lower than in early 1986.

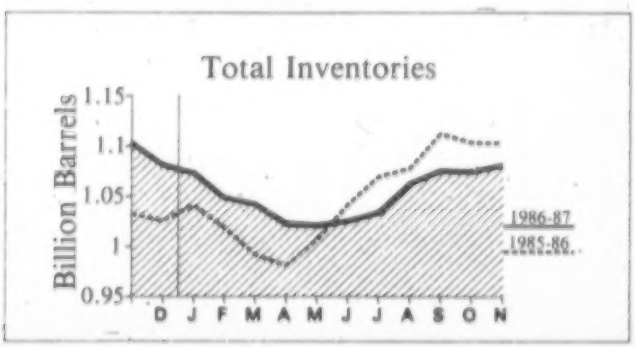
Imports

PRODUCTS STEADY, CRUDE OIL RISES. November's 7.1 million B/D in imports, though up slightly from the prior month, were still short of July's 7.4 million B/D, recent-year record. Imports of gasoline and components jumped 165 thousand B/D from last November to 497 thousand B/D, but imports of distillates dropped 67 thousand B/D to 187 thousand B/D. When combined with declines for residual fuel oil and other products, product imports as a whole were about even with last November. As has been the case for most of this year, increases in imports have been largely in the crude oil category, with November's year-to-year rise of more than one half million B/D being no exception.









Refinery Operations

YIELDS EMPHASIZE DISTILLATE OUTPUT. November's refinery utilization increased by over a percentage point from the prior month, making use of at least part of the rise in crude oil imports. Year to year, input to distillation units was up less than 1 percent from last November, but because of higher distillate yields this year than last, output of that product rose 3.3 percent. In fact, in response to continued strong deliveries during the month, distillate output reached 3.0 million B/D—the second highest November level since 1979. Gasoline production declined 0.8 percent and residual fuel oil production, nearly 6 percent.

Inventories

CRUDE, DISTILLATE INVENTORIES RISE. November's increase in total stocks of 6 million barrels, as has been the case for the past several months, was about normal for this time of year. With refining activity picking up from the prior month, product stocks remained steady after a 13 million barrel decline for October. Despite the increase in crude runs, however, crude oil stocks again rose for the month. November's 6 million barrel increase put crude oil stocks at 357 million barrels, the highest month-end level in several years.

Despite the continued strength in distillate deliveries, high refinery production pushed stocks of that product up by 3 million barrels during the month. At 127 million barrels, November's distillate stocks were lower than the previous recent-year November low of two years ago by 13 million barrels—an amount less than the apparent 15 to 20 million barrel build-up of distributor and end-user inventories during the past three months.

1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 538 million barrels as of November 30, 1987).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	NOVEMBER			YEAR-TO-DATE		
	1987[1]	1986[2]	% Change	1987[2R]	1986[2]	% Change
Products Supplied:						
Total motor gasoline	7,067	6,879	2.7	7,164	7,024	2.0
Finished leaded motor gasoline*	1,550	1,961	(21.0)	1,755	2,201	(20.3)
Finished unleaded motor gasoline*	5,517	4,918	12.2	5,409	4,823	12.2
Naphtha-jet	228	209	9.1	208	202	3.0
Kerosine-jet	1,187	1,171	1.4	1,146	1,093	4.8
Distillate fuel oil	3,052	2,877	6.1	2,940	2,876	2.2
Residual fuel oil	1,243	1,391	(10.6)	1,247	1,398	(10.8)
All other oils[4]	4,157	4,001	3.9	4,072	3,917	4.0
Reclassified[5]	- 290	- 307	(5.5)	- 254	- 308	(17.5)
Total domestic products supplied	16,644	16,221	2.6	16,523	16,202	2.0
Exports	726	821	(11.6)	748	781	(4.2)
Total products supplied	17,370	17,042	1.9	17,271	16,983	1.7
Supply:						
Domestic production:						
Crude oil[6]	8,280	8,412	(1.6)	8,285	8,711	(4.9)
Natural gas liquids	1,602	1,569	2.1	1,597	1,549	3.1
Other supply[7]	604	501	20.6	906	823	10.1
Total domestic supply	10,486	10,482	-	10,788	11,083	(2.7)
Imports:						
Crude oil, total	5,113[10/]	4,570[10/]	11.9	4,589[10/]	4,108[10/]	11.7
Canadian	598	633	(5.5)	613	569	7.7
Other	4,515	3,937	14.7	3,976	3,539	12.3
Products, total	1,973	1,977	(0.2)	1,892	2,023	(6.5)
Residual fuel oil	516	574	(10.1)	547	646	(15.3)
Other	1,457	1,403	3.8	1,345	1,377	(2.3)
Total imports	7,086	6,547	8.2	6,481	6,131	5.7
Total supply	17,572	17,029	3.2	17,269	17,214	0.3
Stock change, all oils	+ 202	- 13	XXXX	- 2	+ 231	XXXX
Refinery Operations						
Input to crude oil distillation units	13,045	12,928	0.9	12,921	12,818	0.8
Operable capacity	15,697	15,440	1.7	15,671	15,460	1.4
Refinery utilization (%)[8]	83.1%	83.7%	(0.7)	82.5%	82.9%	(0.5)
Crude oil runs	12,944	12,831	0.9	12,821	12,710	0.9

Stocks (millions bbls.)	1987		1986[2]	% Change from ...	
	Nov. 30	Oct. 31	Nov. 30	Previous Month	Year Ago
Crude oil [10/]	357.4	351.1	339.1	1.8	5.4
Unfinished oils	101.3	103.3r/	98.5	(1.9)	2.8
Total motor gasoline**	224.8	219.4r/	229.4	2.5	(2.0)
Finished leaded motor gasoline*	52.8	51.7	67.2	2.1	(21.4)
Finished unleaded motor gasoline*	134.6	130.3r/	123.3	3.3	9.2
Naphtha-jet	6.5	6.7	6.9	(3.0)	(5.8)
Kerosine-jet	43.2	42.9	43.2	0.7	-
Distillate fuel oil	126.9	124.1	158.3	2.3	(19.8)
Residual fuel oil	47.0	46.7	46.3	0.6	1.5
All other oils	173.1	179.9r/	180.8	(3.8)	(4.3)
Total all oils	1,080.2	1,074.1r/	1,102.5	0.6	(2.0)

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: January-September, U.S. Department of Energy, October-November, API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

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Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

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JANUARY 13, 1988

SUMMARY

During 1987, in the aftermath of the unprecedented price decline of 1986, many of the directions set in that year—rising demand, falling production, rising imports—continued, but with some new twists:

- Oil prices recovered somewhat throughout much of 1987, with the average price for crude oil for the year up about $3 per barrel over 1986—but on an inflation-adjusted basis still the lowest, after 1986, since before the Arab oil embargo of 1973. In addition, the price volatility that accompanied OPEC's inconclusive December meeting reemphasized the increased uncertainty that has made planning decisions more problematical for both producers and consumers over the past two years.
- Both total energy and petroleum consumption continued to grow, with petroleum deliveries' 1.8 percent increase exceeding forecasts which had generally placed demand growth at less than a percent for the year. Though the rate of increase for petroleum slowed from the previous year because of a switching-related decline for residual fuel oil, for petroleum products excluding residual fuel oil, no slowdown was evident.
- Despite record production in Alaska, domestic crude oil output reached the lowest level in a decade and by year-end was down more than 900 thousand B/D or 10 percent from early 1986. Though there was an upturn in exploration and production activity in 1987 from the low points in 1986, levels were still far below those of only two years ago.
- As a result of the continued rise in consumption and decline in domestic supplies, imports continued to rise, reaching another recent-year high of 6.5 million B/D, or 39 percent of domestic consumption. Though inventory behavior played a small role, nearly all of the over 1.5 million B/D, 31 percent increase in imports over the past two years is accounted for by the increase in demand and fall-off in production.

Residual fuel oil's nearly 12 percent decline in 1987 was one of the major reasons for the slowdown in total deliveries' growth. This was a reversal of 1986's experience, when residual fuel oil deliveries rose over 200 thousand B/D, or 18 percent, because low oil prices relative to natural gas made fuel switching at electric generation and industrial sites attractive. Without the swings of residual fuel oil, 1987's increase in deliveries of the remaining products would have been 3 percent—the same as in the latter half of 1986 when consumption gains began to accelerate in response to lower prices.

Though deliveries of these other products continued to rise in 1987, there were some shifts in their relative contributions to total deliveries' increase. Motor gasoline's growth slipped a percentage point to 2.0 percent. Continued increases in truck traffic helped to maintain distillates' growth at 1.5 percent, similar to 1986's experience, but kerosine jet fuel deliveries rose only 4.3 percent, less than half of the previous year's 10 percent jump. Strong growth in the other oils category, up 4.3 percent for the year in part because of strong chemical feedstock demand, contributed almost 170 thousand B/D to the year's 287 thousand B/D increase in total deliveries.

For December, deliveries of all the major products were below what would be expected based on estimated consumption. This included distillates, which for the previous three months had experienced unusually strong deliveries because of an apparent buildup in nonprimary inventories. Most likely, price uncertainty tied to OPEC's difficulties made many distributors somewhat more reluctant to hold inventories.

To assist in viewing 1987's supply and demand developments in a longer-range context, this issue of the Monthly includes a graphical supplement covering major components of the petroleum balance over the past eight years (see pages 9 and 10).

API ESTIMATES

	DECEMBER		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	17.1	(0.4)	16.6	1.8
Crude oil production[2/]	8.2	(1.4)	8.3	(4.5)
Total imports[3/]	6.8	2.2	6.5	5.3
Stocks (million bbl)[3/]	1,068	(1.2)	na	na

PRODUCT SUPPLIED [1/]

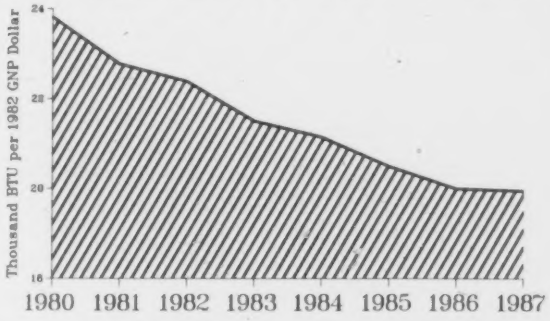
Energy

GAINS IN ENERGY EFFICIENCY SLOWING. Total energy consumption's rate of growth accelerated in 1987, and, based on preliminary data, improvements in the energy efficiency of the economy slowed substantially from the trend that had prevailed since the early 1970s. After barely holding steady in 1985, energy consumption rose 0.4 percent in 1986 and an estimated 2.5 percent in 1987 (see Table 1, page 3). With increases for all the major energy sources, petroleum's share decreased slightly to 43.0 percent. However, this share was still higher than for the years immediately preceding 1986, a year which marked the reversal of an eight-year decline.

For coal, demand springing from the year's increased electricity generation was partially offset by the coming on line of additional nuclear capacity and greater generation from natural gas. Coal, however, kept its lead in market share over natural gas for the second year in a row, a situation not previously duplicated since the 1950s. The added nuclear capacity was responsible for an increase in consumption of "other" energy sources, which took place despite a decline in hydro generation. Natural gas consumption also increased, though current Department of Energy data show declines because gas transported by pipelines for others has not been fully accounted for. Actual consumption for 1987 can only be estimated from available, incomplete data, but redesign of survey forms and possible revision of the data may eventually resolve this problem.

Preliminary data and estimates indicate that although U.S. energy efficiency, as measured by the energy/GNP ratio, was still improving in 1987, the rate of improvement slackened (see the accompanying figure). Declines in the energy/GNP ratio had averaged about 3.4 percent 1980 to 1983 and 2.4 percent in the following three years, but the decrease for 1987 is estimated at only about 0.3 percent. Though lags and extraneous factors such as weather can color short term movements in this measure, it is becoming increasingly apparent that the lower energy prices of the past several years have slowed conservation efforts.

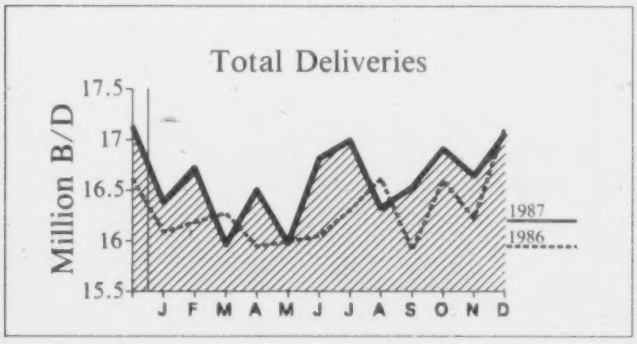
Energy Consumed Per Dollar of Real GNP

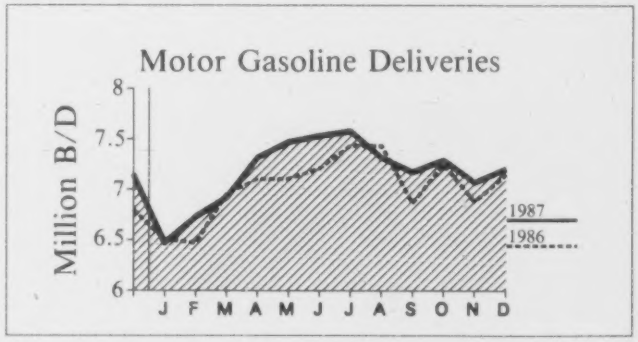


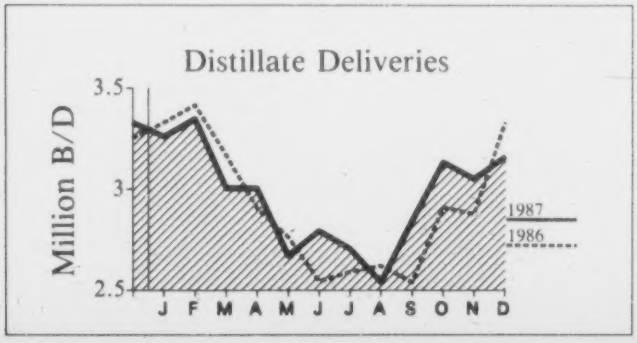
Sources: Department of Energy, Department of Commerce, API estimates.

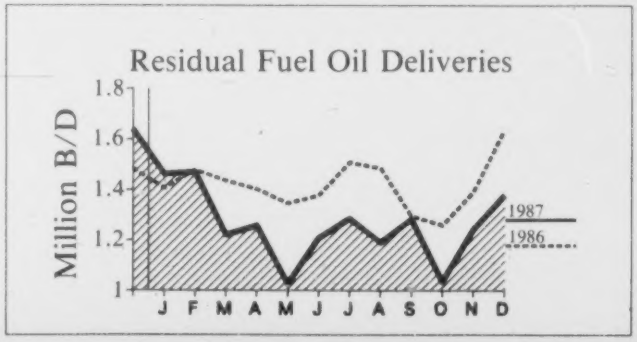
Gasoline

GROWTH SLIPS IN 1987 BY 1 PERCENT. Gasoline deliveries' 2.0 percent increase for 1987, slowing by a percentage point from 1986's 3 percent rise, continued the growth that has now been taking place for five years, following the price-related decline of the late 1970s and early 1980s. The reduced growth in deliveries in 1987 was attributable to slower income growth—real disposable personal income rose only about 1 percent in the past year, versus 4 percent in 1986.









Vehicle travel, however, is estimated to have grown at nearly 4 percent in 1987, up from 3.6 percent in 1986—implying an increase in fuel efficiency on the order of 2 percent during 1987, similar to that of two years ago. This is somewhat surprising, in view of 1986's efficiency gain of only 0.7 percent and little reason to expect a larger gain in 1987 because of a slowing in new car sales.

Unleaded gained 6.8 percentage points in market share in 1987, more than 2 points above the previous year's 4.5 point increase and the biggest gain in seven years. By year-end, the increasing movement towards unleaded gasoline had put its share at nearly 80 percent of the market. Little, if any, of the gain seems to have taken place in the premium unleaded category, which had been growing rapidly in 1986. Most likely, midgrade unleaded has not only replaced part of leaded regular's share in some markets but has also provided an alternative for motorists seeking unleaded fuel with a higher octane than unleaded regular. Estimates of market share for midgrade unleaded, however, vary due to scanty data; the Department of Energy may begin to break out midgrade in its petroleum supply surveys, but this is not scheduled to occur before 1989 at the earliest.

Gasoline prices at year-end were running about 13 cents per gallon higher than a year earlier in response to higher crude oil costs. However, for all of 1987, they averaged only about 2 cents above those for 1986—a gain entirely eliminated by inflation. On an inflation-adjusted basis, 1987's prices were still one fourth below those of 1985 and roughly equal to those of the early 1970s prior to the Arab oil embargo.

TABLE 1

ESTIMATED ENERGY CONSUMPTION AND SHARES BY TYPE

Consumption (Quadrillion BTU Annually)

	Coal	Natural Gas	Petroleum	Other	Total
1986	17.3	16.7	32.2	8.1	74.2
1987	17.7	17.3	32.7	8.3	76.1
Change	+0.4	+0.6	+0.5	+0.2	1.9
Percent change	+2.8%	+3.6%	+1.8%	+2.4%	2.5%

Market Shares (Percent)

1986	23.3	22.5	43.3	10.9	100.0
1987	23.3	22.7	43.0	10.9	100.0
Percentage point change in share	—	+0.2	−0.3	—	

Note: Figures rounded independently; calculations based on unrounded data.

Sources: Department of Energy, API estimates.

Distillates

TRANSPORTATION USE KEEPS DISTILLATES ON UPWARD COURSE. Distillate deliveries rose 1.5 percent in 1987, almost the same as 1986's increase. On-highway usage, responding to a pick-up in truck traffic growth, along with apparent building of nonprimary heating oil inventories, helped to push distillates' increase in the second half to about twice that rate. For the year, on-highway's 3.1 percent rise was the main contributor to distillates' growth (see Table 2) and is roughly in line with increases of the previous two years. In fact, distillate deliveries for other uses fell by over 15 percent since 1980 due to reduced consumption for heating and other purposes.

Gains in rail traffic of over 7 percent also helped to increase distillate deliveries in 1987, along with small increases for several other sectors. Residential and commercial held steady while continued weakness in the farm sector, switching-related declines in industry, and softness in the off-highway sector because of a slowing of new construction all provided small offsets to the other sectors' gains.

The buildup of nonprimary inventories, which helped to raise distillate deliveries by nearly 9 percent year-to-year during the previous three months, apparently ended in December. Consequently, December's 5 percent, 168 thousand B/D decline in deliveries was larger than would have been expected after adjusting for above-trend deliveries in December 1986 and somewhat warmer weather for December 1987.

TABLE 2

ESTIMATED DISTILLATE DELIVERIES BY SECTOR (Thousand B/D)

	1986	1987	Percent Change
Residential and commercial	756	760	0.5%
Farm	220	213	−3.2
Industrial	175	168	−4.0
Oil companies	49	50	2.0
Utilities	40	44	10.0
On-highway	1,169	1,205	3.1
Railroad	202	217	7.4
Bunkering	133	137	3.0
Off-highway	111	105	−5.4
Military	50	50	0.0
Other	9	8	−11.1
Total	2,914	2,957	1.5%

Sources: Department of Energy, API estimates.

Residual Fuel Oil

SWITCHING BRINGS REVERSAL OF 1986 SURGE. Following 1986's 18 percent increase, the past year's nearly 12 percent decline left deliveries of residual fuel oil still slightly higher than in 1985 but well below the levels of the early 1980s. As with its rise in 1986, most of residual fuel oil's fall this past year has been related to fuel switching. With depressed natural gas prices for much of the year and some recovery in oil prices, electric utilities decreased purchases of residual fuel oil by an average 100 thousand B/D (see Table 3). Industrial usage, too, is estimated to have slipped back by about 40 thousand B/D. A drop for commercial use and a small decline for bunkering, with no offsetting increases in any sector, brought residual fuel oil's decline for the year to 165 thousand B/D.

December continued this pattern with a greater-than-average decline of close to 16 percent. The hesitancy to purchase more than immediate requirements, as with other products, was apparent for residual fuel as well.

TABLE 3
ESTIMATED RESIDUAL FUEL OIL DELIVERIES BY SECTOR
(Thousand B/D)

	1986	1987	Percent Change
Utilities	590	490	−16.9%
Bunkering	345	335	−2.9
Industrial	293	253	−13.7
Oil companies	50	50	—
Commercial	108	95	−12.0
Military	12	12	—
Other	20	18	−10.0
Total	1,418	1,253	−11.6%

Sources: Department of Energy, API estimates.

Kerosine Jet Fuel

DELIVERIES' RATE OF INCREASE SLOWS. The rate of growth of kerosine jet fuel deliveries dropped sharply in 1987 from 1986's 10 percent rise. The past year's slowdown in deliveries growth to 4.3 percent, at least for the year as a whole, roughly matches that of air traffic—increases in revenue miles flown dropped from about 12 percent in 1986 to an estimated 7 percent in 1987. But for the second half, deliveries increases slowed to less than 3 percent, though the second half's gain in miles flown still amounted to about 6 percent. It may be that jet fuel imported by end users into bonded storage has not been fully represented in existing data.

Growth in international traffic was especially strong in 1987, partly because of a reversal of 1986's level of depressed foreign travel. International revenue passenger miles rose by one fourth, though the increase in miles flown was only about half that as load factors recovered ground lost in 1986. Cargo traffic was also strong in 1987, rising roughly 10 percent over the prior year.

December's deliveries of kerosine jet fuel were off slightly from last year even though traffic growth is estimated to have continued at 5 to 6 percent for the month.

Other Oils

PETROCHEMICAL DEMAND CONTRIBUTES TO STRONG GROWTH. Products supplied in the other oils category for 1987 averaged an estimated 4,090 thousand B/D, an increase of 4.3 percent over the 1986 estimate of 3,921 thousand B/D. In contrast, deliveries of the major products, mainly because of residual fuel oil's decline, are estimated to have risen by only 1 percent for the year. The growth in "other oils" therefore accounts for more than half of the increase in deliveries of all petroleum products.

Petrochemical feedstocks provided the principal impetus to growth of deliveries of this category, but growth rates for individual products varied substantially. Propane deliveries rose by an estimated 17 percent largely as a result of increased demand for olefin feedstock; but ethane, which declined by 4 percent, continued to lose market share to propane. Nonetheless, LPG deliveries rose by an estimated 10 percent for the year. Naphtha deliveries increased by a modest 2 percent; the export-led demand for its product slates earlier in the year as a result of the falling dollar was largely offset by firming oil prices, which were higher than in the previous year. Gasoil deliveries declined by over 8 percent from last year's levels, losing ground to lighter feedstocks.

Other products contributed to the rise in "other oils" deliveries; passage of the federal highway bill stimulated asphalt deliveries by an estimated 16 percent for the year as a whole; lubes and waxes deliveries rose by 10 percent. However, kerosine, which declined by approximately 3 percent, continued to lose its share of the space-heating market, consistent with long-term trends.

December's estimate for "other oils" deliveries corresponds with the trend for the year as a whole. Products supplied for the month are estimated to be 4,216 thousand B/D, up 1.4 percent from the previous month and 6.6 percent from December 1986. The month-to-month increase, due largely to the onset of winter weather, is consistent with seasonal patterns for the "other oils" group. Petrochemical feedstocks continue to account for most of the year-to-year increase in December deliveries.

SUPPLY [1/]

Production

ACTIVITY STILL DOWN, AND OUTPUT CONTINUES TO FALL. Crude oil production, which had been rising steadily before 1986's price crash, fell again in 1987, averaging less than 8.3 million B/D for the year.

The year's decline in production came despite record output in Alaska of nearly 2 million B/D, due to contributions

from several new facilities and fields which had been under development for several years but brought on stream only in the past year or so.

For the nation as a whole, what recovery there has been in oil exploration, development, and field maintenance is still dwarfed by the magnitude of the earlier decline, which, according to API's latest *Survey on Oil and Gas Expenditures*, had brought a $30 billion, 38 percent fall-off in spending in upstream activities in 1986. Rig activity, for example, ended 1987 about 20 percent higher than for December 1986—but 40 percent below the year-end level of 1985. Well servicing activity, though increasing since mid-1987, still fell short of late 1985 levels by more than 20 percent. And employment in oil and gas extraction, up only a few percent from last year's lows, is still off by about one fourth from the 1985 average.

As a result of still-depressed levels of exploration and development, lower 48 production has continued to decline at approximately the same rate over the past twelve months, with a decline trend of about 340 thousand B/D or 5 percent per year. At year-end, production outside Alaska was more than 1.1 million B/D below the levels of early 1986.

Imports

UP MORE THAN 31 PERCENT IN TWO YEARS. Imports in 1987 surpassed the previous year's recent-year record, reaching 6.5 million B/D, the highest level since 1980. Prior to 1986, imports for several years had been either declining or stable. Though the 5 percent increase seems moderate compared with 1986's surge, inventory movements have partially obscured the impact of rising production and falling consumption. The trend in imports, if adjusted for inventory changes, would be nearly 17 percent in 1986 and, mainly because of lower demand growth, about 9 percent in 1987 — still amounting to over 26 percent or 1.4 million B/D for the two years combined. The actual two-year increase was 31 percent or over 1.5 million B/D.

As a result of these trends, imports in 1987 accounted for nearly 40 percent of deliveries, and almost half came from OPEC producers. Crude oil imports rose nearly half a million B/D for the year; product imports, almost entirely because of lower demand for and imports of residual fuel oil, fell 140 thousand B/D.

December's imports slipped to 6.8 million B/D from November's 7.1 million B/D, as uncertainty about the results of OPEC's meeting caused some importers to postpone acquisitions.

Refinery Operations

REFINING CAPACITY STABILIZES IN 1987. Despite the year's rise in deliveries and decline in product imports, input to distillation rose less than a percent for 1987 as late in the year there was a shift toward holding more crude oil and less products in inventory. Even so, gasoline production for the year, at 6.8 million B/D, reached the highest level since 1979 to meet continued growth in demand.

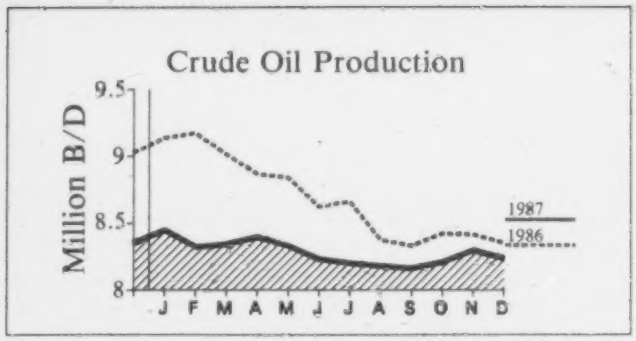
Refinery capacity, after declining steadily since 1981, stabilized in 1987. The utilization rates of the early 1980's of less than 70 percent have continued to progress upwards to an annual average of 83 percent in each of the past two years. This is still about 5 points short of utilization rates of the mid-70s, prior to the price-induced demand slump that followed the Iranian supply disruption of 1978-79. However, downstream units, needed for gasoline and other highly refined products, have reportedly been operating at much closer to capacity than the commonly-cited utilization figure would indicate.

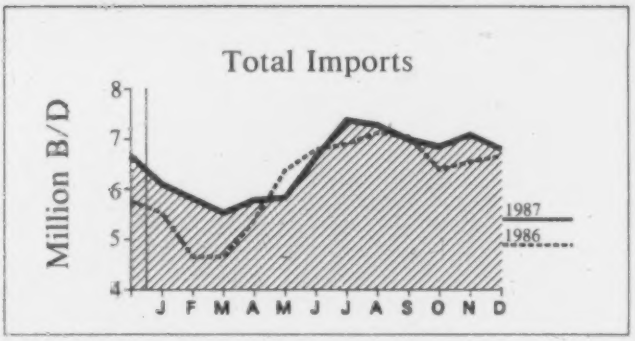
For December, runs inched up from November's levels. This, combined with strong emphasis on distillate yields, pushed distillate production to nearly 3.3 million B/D, the highest monthly output since the late 1970s.

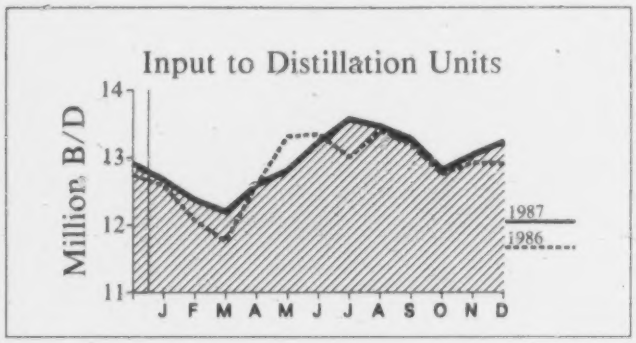
Inventories

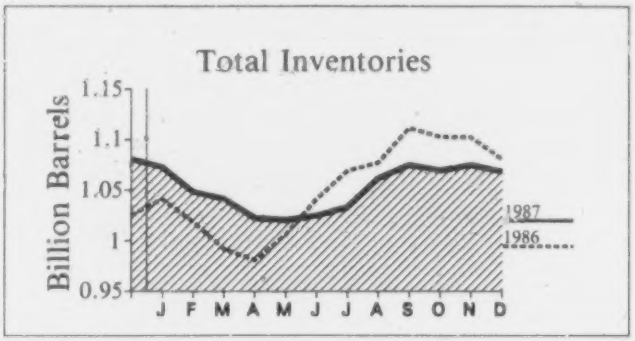
IN PROPORTION TO DELIVERIES, STOCKS NOT UNUSUALLY HIGH. Total stocks declined only 6 million barrels in December, contrasted with an average 25 million barrel decline for the previous five Decembers. Most of the decline was in crude oil inventories, which nevertheless remained about 25 million barrels above levels as recent as July's. For all of 1987, the net change in inventories averaged out to a modest 12 million barrel decline, with the principal change being mainly a shift to holding crude oil versus product rather than a change in total inventory. In fact, in terms of days of supply, year-end stocks represented 63 days of deliveries, about the same as for the previous two Decembers and lower than the 70-and-above levels that prevailed in the early 1980s.

With strong refinery output and slackening deliveries, distillate stocks rose 10 million barrels in December to 137 million barrels. When combined with the ability of U.S. refineries to produce distillate at monthly rates as high as demonstrated in December, along with potential incremental imports if needed, distillate supplies appear more than adequate to meet any likely demand level over the remainder of the heating season, barring unforeseen supply interruptions.









1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 541 million barrels as of December 31, 1987).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	DECEMBER			YEAR-TO-DATE		
	1987[1]	1986[2]	% Change	1987[3R]	1986[2]	% Change
Products Supplied:						
Total motor gasoline	7,203	7,143	0.8	7,174	7,034	2.0
Finished leaded motor gasoline*	1,485	1,950	(23.8)	1,732	2,180	(20.6)
Finished unleaded motor gasoline*	5,718	5,193	10.1	5,442	4,854	12.1
Naphtha-jet	187	209	(10.5)	206	202	2.0
Kerosine-jet	1,242	1,236	0.5	1,152	1,105	4.3
Distillate fuel oil	3,161	3,329	(5.0)	2,957	2,914	1.5
Residual fuel oil	1,377	1,638	(15.9)	1,253	1,418	(11.6)
All other oils[4]	4,216	3,955	6.6	4,090	3,921	4.3
Reclassified[5]	- 322	- 379	(15.0)	- 264	- 313	(15.7)
Total domestic products supplied	17,064	17,131	(0.4)	16,568	16,281	1.8
Exports	715	820	(12.8)	743	785	(5.4)
Total products supplied	17,779	17,951	(1.0)	17,311	17,066	1.4
Supply:						
Domestic production:						
Crude oil[6]	8,236	8,352	(1.4)	8,288	8,680	(4.5)
Natural gas liquids	1,631	1,571	3.8	1,600	1,551	3.2
Other supply[7]	906	678	33.6	884	811	9.0
Total domestic supply	10,773	10,601	1.6	10,772	11,042	(2.4)
Imports:						
Crude oil, total	4,628[10/]	4,365[10/]	6.0	4,600[10/]	4,130[10/]	11.4
Canadian	538	581	(7.4)	605	570	6.1
Other	4,090	3,784	8.1	3,995	3,560	12.2
Products, total	2,169	2,288	(5.2)	1,905	2,045	(6.8)
Residual fuel oil	556	913	(39.1)	542	669	(19.0)
Other	1,613	1,375	17.3	1,363	1,376	(0.9)
Total imports	6,797	6,653	2.2	6,505	6,175	5.3
Total supply	17,570	17,254	1.8	17,277	17,217	0.3
Stock change, all oils	- 209	- 697	XXXX	- 34	+ 151	XXXX
Refinery Operations						
Input to crude oil distillation units	13,238	12,914	2.5	12,947	12,826	0.9
Operable capacity	15,697	15,440	1.7	15,670	15,459	1.4
Refinery utilization (%)[8]	84.3%	83.6%	0.8	82.6%	83.0%	(0.5)
Crude oil runs	13,099	12,777	2.5	12,844	12,716	1.0

Stocks (millions bbls.)	1987		1986[2]	% Change from ...	
	Dec. 31[9]	Nov. 30[9]	Dec. 31	Previous Month	Year Ago
Crude oil [10/]	352.2	357.5r/	331.2	(1.5)	6.3
Unfinished oils	91.9	101.2r/	94.0	(9.2)	(2.2)
Total motor gasoline**	227.5	224.7r/	233.1	1.2	(2.4)
Finished leaded motor gasoline*	54.4	52.9r/	68.2	2.8	(20.2)
Finished unleaded motor gasoline*	135.5	134.5r/	126.0	0.7	7.5
Naphtha-jet	7.2	6.5	7.1	10.8	1.4
Kerosine-jet	43.9	43.3r/	42.7	1.4	2.8
Distillate fuel oil	136.7	126.9	155.1	7.7	(11.9)
Residual fuel oil	46.1	47.0	47.4	(1.9)	(2.7)
All other oils	162.9	167.8r/	170.3	(2.9)	(4.3)
Total all oils	1,068.4	1,074.9r/	1,080.9	(0.6)	(1.2)

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: January-October, U.S. Department of Energy, November-December, API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	4th QUARTER		
	1987[1]	1986[2]	% Change
Products Supplied:			
Total motor gasoline	7,188	7,093	1.3
Finished leaded motor gasoline*	1,569	2,026	(22.6)
Finished unleaded motor gasoline*	5,619	5,067	10.9
Naphtha-jet	205	208	(1.4)
Kerosine-jet	1,210	1,157	4.6
Distillate fuel oil	3,118	3,041	2.5
Residual fuel oil	1,219	1,430	(14.8)
All other oils[3]	4,240	4,063	4.4
Reclassified[4]	- 303	- 336	(9.8)
Total domestic products supplied	16,877	16,656	1.3
Exports	694	824	(15.8)
Total products supplied	17,571	17,480	0.5
Supply:			
Domestic production:			
Crude oil[5]	8,275	8,394	(1.4)
Natural gas liquids	1,614	1,539	4.9
Other supply[6]	716	684	4.7
Total domestic supply	10,605	10,617	(0.1)
Imports:			
Crude oil, total	4,932[9/]	4,437[9/]	11.2
Canadian	591	602	(1.8)
Other	4,341	3,835	13.2
Products, total	1,975	2,092	(5.6)
Residual fuel oil	485	709	(31.6)
Other	1,490	1,383	7.7
Total imports	6,907	6,529	5.8
Total supply	17,512	17,146	2.1
Stock change, all oils	- 59	- 334	XXXX
Refinery Operations			
Input to crude oil distillation units	13,038	12,864	1.4
Operable capacity	15,684	15,438	1.6
Refinery utilization (%)[7]	83.1%	83.3%	(0.2)
Crude oil runs	12,925	12,747	1.4

Stocks (millions bbls.)	4th QUARTER		
	1987[8]	1986[2]	% Change
Crude oil	352.2[9/]	331.2[9/]	6.3
Unfinished oils	91.9	94.0	(2.2)
Total motor gasoline**	227.5	233.1	(2.4)
Finished leaded motor gasoline*	54.4	68.2	(20.2)
Finished unleaded motor gasoline*	135.5	126.0	7.5
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6/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
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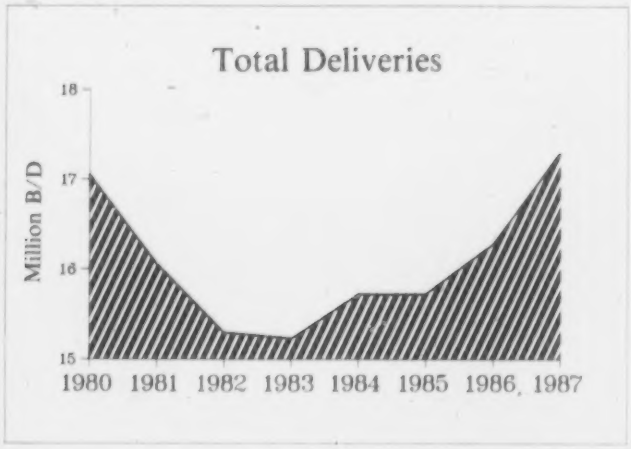
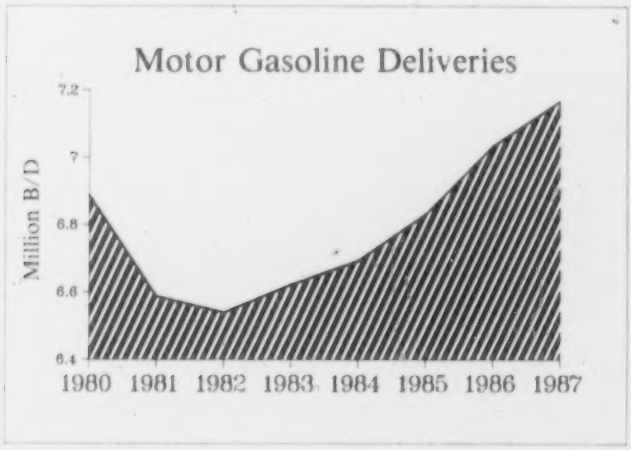
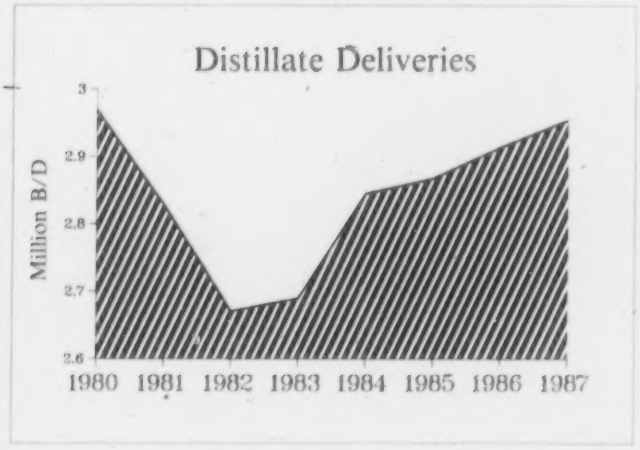
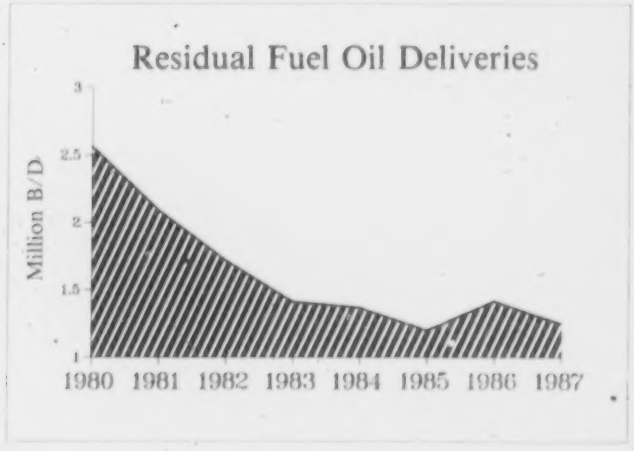
8/ Derived by interpolating API weekly stocks data.
9/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

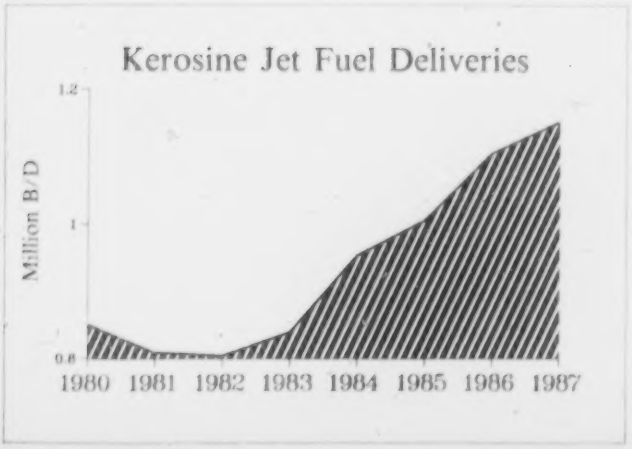
SUPPLEMENT
Components of Petroleum Deliveries and Supply
1980-1987

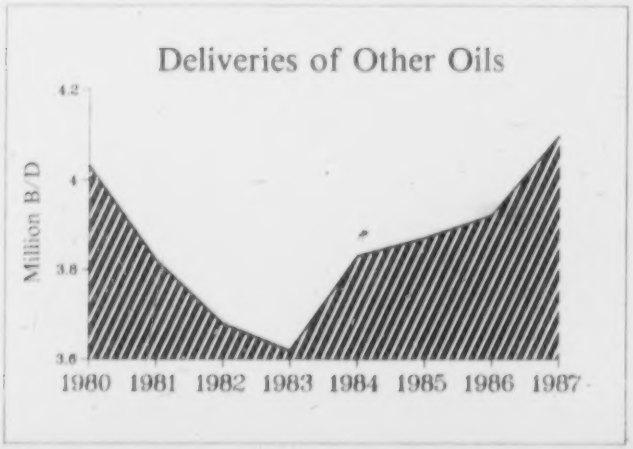


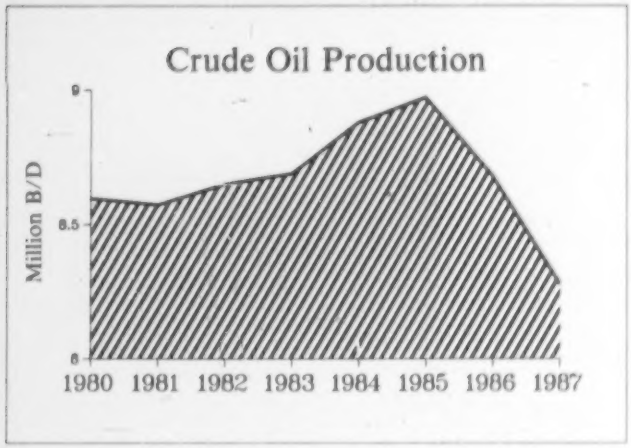


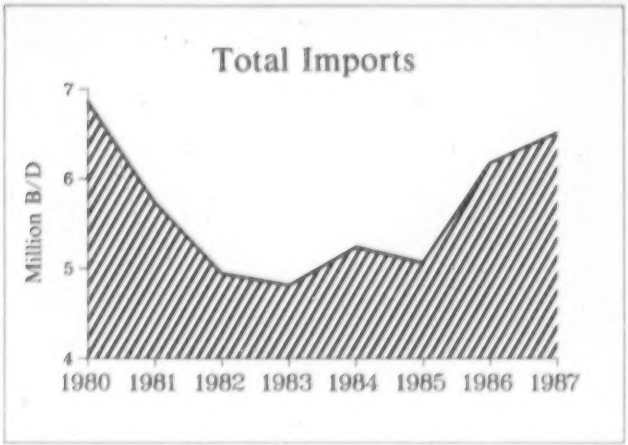


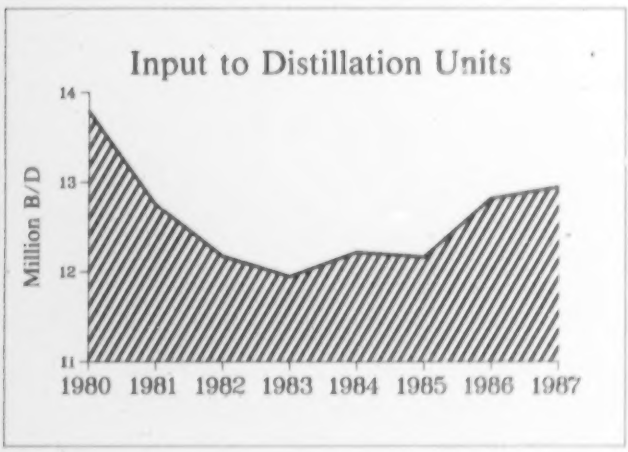


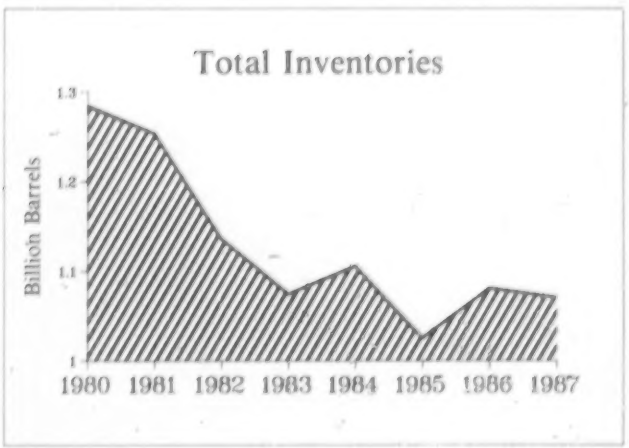












Sources: 1980-1986, Department of Energy; 1987, API.

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American Petroleum Institute
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Washington, D.C. 20005

Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 12, No. 1

FEBRUARY 17, 1988

JANUARY 1988

SUMMARY

January's unusually large, 6.9 percent increase in total deliveries, amounting to a 1.1 million B/D rise over last January, resulted from larger-than-normal increases for all major fuels. The increase was the result of several factors including weather, fuel switching, likely replenishment of distributor and end-user inventories, and below-trend deliveries last January.

Gasoline's 286 thousand B/D, 4.4 percent increase was partly the result of below-trend deliveries a year ago; adjusted for this, deliveries would have risen only about 1.3 percent. Distillate deliveries' jump of over 13 percent, however, was mostly the result of factors this year—including extremely cold weather, continued strength in transportation usage, and apparent replenishment of nonprimary inventories after weak deliveries in December. Natural gas curtailments and spot price increases helped to push electric utilities and industrial users with dual fuel capability towards petroleum fuels, including both residual fuel oil and distillates—helping to give residual fuel oil its first year-to-year increase in twelve months. Kerosine jet fuel deliveries jumped over 21 percent, reversing a pattern of weak increases in recent months; also contributing to the increase was demand for blending with distillates as a result of cold weather. Deliveries of "other oils", continuing the strong growth of recent months, contributed over 160 thousand B/D to January's increase as well.

The familiar story of domestic production's decline continued in January, with U.S. crude oil output down 1 million B/D from two years ago, despite increases in Alaska. Though, regionally, the biggest percentage decline in production has been in the Midwest and Eastern states where most wells are small producers, the largest regional volume decline has been in the Gulf Coast area. Texas alone has accounted for a third of the lower 48's decline of the past two years.

Imports continued at levels similar to recent previous months in January, but a shift away from crude towards products has been evident in the past few months. January's refinery yields displayed a marked emphasis on distillates and heavier products, in response to strong deliveries for these fuels.

Total stocks fell 24 million barrels during the month, in line with typical seasonal behavior. Distillate stocks at month-end were only 2 million barrels less than at the end of September, so that, on a net basis, only about half a percent of this heating season's nearly 400 million barrels of distillate deliveries so far has been supplied from primary inventories.

PRODUCT SUPPLIED [1/]

Gasoline

RISE PARTLY DUE TO LOW DELIVERIES LAST JANUARY. Following a weak 0.8 percent increase in December, January's deliveries of motor gasoline rose 4.4 percent or 286 thousand B/D. Part of the larger-than-usual increase is attributable to below-trend deliveries a year ago, when heavy snows slowed consumption and deliveries on the East Coast. If last January's deliveries had been in line with deliveries trends of that period, this January's increase would have been roughly 1.3 percent—more than half a point less than last year's annual increase. With data on miles traveled continuing to show year-to-year increases on the order of 4 percent for the most recent months available, and allowing for fuel efficiency improvements, the adjusted January increase appears to be slightly less than estimated underlying consumption growth.

Unleaded's share of deliveries exceeded 80 percent for the first time in January, continuing the accelerated penetration of unleaded over the past year. For 1984 to 1986, unleaded's share had risen only 4 to 5 percentage points per year. More recently, year-to-year gains have been closer to January's 7.1 percentage point gain, reflecting the growing role of midgrade unleaded.

API ESTIMATES

	JANUARY	
	Million B/D	Percent Change
Total domestic deliveries	17.5	6.9
Crude oil production[2/]	8.1	(3.7)
Total imports[3/]	7.0	14.4
Stocks (million bbl)[3/]	1,065	(0.6)

Distillates

DELIVERIES JUMP OVER 13 PERCENT. The explanation of January's unusually large year-to-year increase in distillate deliveries —amounting to more than 400 thousand B/D or over 13 percent—is complex, involving below-trend deliveries last year, weather, transportation traffic growth, blending of kerosine jet fuel, fuel switching, and nonprimary stock movements.

To begin to unravel these many influences, it should first be noted that last January's deliveries were about 100 thousand B/D below trend, after accounting for weather, probably due to nonprimary stock movements. This January's 9 percent colder weather added at least another 120 thousand B/D to the year-to-year comparison, though with extremely cold weather concentrated in the earlier part of the month, the effect may have been larger. Continued strengthening in transportation usage is estimated to have added perhaps another 100 thousand B/D to this January's deliveries.

It would seem that this would leave roughly 100 thousand B/D of the year-to-year increase to be explained by other factors. These factors include fuel switching related to higher spot prices and industrial curtailments for natural gas, as well as replenishment of distributor and end-user inventories following lower-than-typical deliveries in December and in anticipation of a possible barge worker strike in New York Harbor. But, in fact, distillate deliveries' January increase would be even larger if recognition were made of kerosine jet fuel transfers to distillate markets through downstream blending. At least part of kerosine jet fuel's January deliveries, above trend by perhaps 150 thousand B/D, should also be included as part of January's distillate fuel oil supplies.

In any event, much of January's deliveries increase resulted from weather and other short-term factors. After accounting for these, it appears that the underlying growth rate for distillate consumption was around 3 to 4 percent for January.

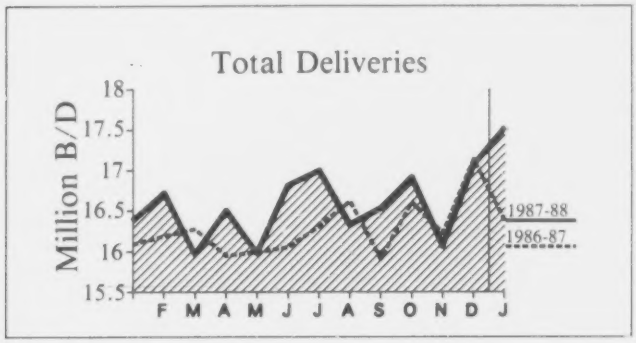
Residual Fuel Oil

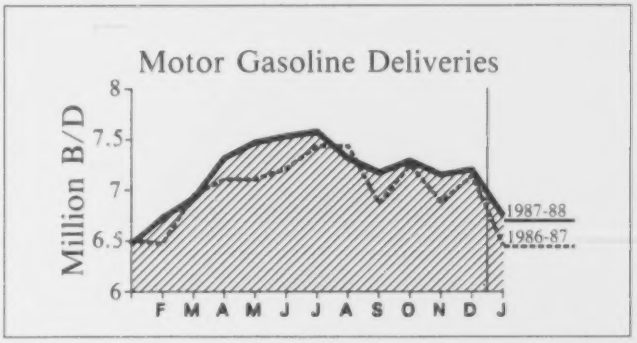
FIRST YEAR-TO-YEAR INCREASE IN TWELVE MONTHS. January deliveries of residual fuel oil were estimated to be 1,532 thousand B/D, an increase of 11.3 percent from December and 4.8 percent from last January. The more than 150 thousand B/D increase from December contrasts sharply with the January declines in the previous two years. The weather and disruptions of gas supplies were primarily responsible for the unusual increase in January, the first year-to-year increase in twelve months.

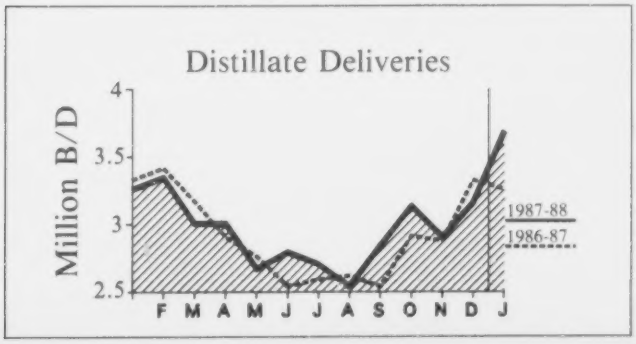
As a result of January's colder weather, deliveries to the major sectors—residential, commercial, industrial, and electric utilities—rose substantially. Several Northeast power plants which burn heavy oil as a marginal fuel increased their purchases of residual fuel oil by as much as 25 percent. In addition, the recent rise of spot gas prices to over $2.00/MCF encouraged some industrial plants to switch to residual fuel oil. In Southern California, the combined effects of cold weather and curtailments in anticipation of possible additional disruption of gas supplies in the wake of FERC's Order 500 caused industrial and commercial enterprises with dual-fired capability to switch to heavy fuel oil for much of the month, raising deliveries by as much as 50 thousand B/D. The gradual resumption of gas supplies in that region as well as a moderation of the cold weather in the country appeared to result in a modest decline in heavy fuel oil demand towards the end of the month.

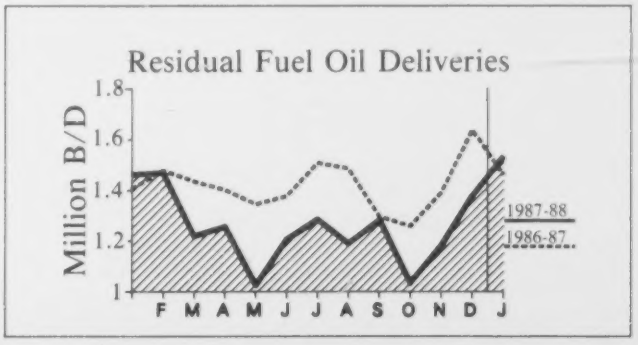
Kerosine Jet Fuel

WEAK DELIVERIES PATTERN REVERSED. Late last year, kerosine jet fuel deliveries had been running below what air traffic growth indicated, rising only 3 percent in the second half of 1987 versus an estimated increase in miles flown of about 6 percent. But January's 21 percent, 244 thousand B/D increase, as









noted above, represents more than a reversal of recent deliveries patterns for air transport. Reportedly, kerosine jet fuel has been pressed into service to increment distillate fuel oil supplies and bring some imported product up to cloud-point specifications.

However, some of January's surge in deliveries, roughly 150 thousand B/D higher than would be expected based on growth in consumption for air transport, likely also represents replenishment of end-user jet fuel inventories after months of below-trend deliveries. Assuming that air traffic growth continued at a rate similar to that of the second part of last year, recovering from relatively flat performance in December, actual consumption for kerosine jet fuel for air transport probably grew 5 to 6 percent in January.

Other Oils

WEATHER, CHEMICAL DEMAND BRING 4 PERCENT RISE.

"Other oils" deliveries for January are estimated to be 4,279 thousand B/D, an increase of 1.4 percent from December and 4.0 percent from January 1987. The severe winter weather experienced throughout the entire country during the first half of the month resulted in a substantial rise in deliveries of space-heating fuels. Propane demand for space-heating was estimated to have been 40 to 45 thousand B/D higher than during the previous year; kerosine consumption was estimated to have been 20 to 25 thousand B/D higher. The unusually cold weather, however, is believed to have virtually halted deliveries of asphalt and road oil, even in traditionally strong Sunbelt markets.

Petrochemical feedstock deliveries continued to run at levels substantially higher than last year, confirming a strong upward trend and accounting for more than half of the year-over-year increase in "other oils" deliveries. Although propylene continued to dominate olefin feedstock markets, high ethylene demand also appears to have stabilized the slide in ethane prices and deliveries, both of which increased slightly in January. At the heavier end of the olefin feedstock market, naphtha, having languished throughout much of last year, also started to become more competitive with propylene, primarily as a result of continuing increases in propylene and butadiene demand.

Refinery gas production and consumption are estimated to have fallen by 2 percent from last month, but this decline is substantially less than the seasonal norm. On a year-to-year basis, still gas deliveries are estimated to have risen by more than 2 percent from last year's levels, contributing to the increase in "other oils" deliveries.

SUPPLY [1/]

Production

CRUDE OIL OUTPUT FALLS 1 MILLION B/D IN PAST TWO YEARS.

January's domestic crude oil production continued its now-familiar decline, falling 3.7 percent versus a year ago. Compared with two years ago, when crude oil prices were just beginning to fall and little observable effect on crude oil output had yet appeared, this January's production represents an 11 percent, 1 million B/D decline—even though it includes Alaska's roughly 120 thousand B/D increase over the period.

Regionally, the areas of the lower 48 with the largest proportional declines have been in the East and Midwest, where most wells are relatively small producers and stripper wells account for most production. Together, these regions, which are responsible for one seventh of domestic production outside Alaska, have experienced a decline in crude oil production of nearly one fourth or over 250 thousand B/D in the past two years. In terms of volume, however, the Gulf Coast region's 15 percent decline has accounted for over 600 B/D of the lower 48's 1.1 million B/D fall-off over the two-year period. Texas alone accounted for about a third of the lower 48's decline. West Coast production has dropped the least of any region in the lower 48, falling only about 8 percent or less than 100 thousand B/D in two years.

Imports

A SHIFT FROM CRUDE IN RECENT MONTHS.

Total imports in January, at 7.0 million B/D, continued near the levels of the past six months—but within that total, crude oil imports have been giving way to product imports as domestic inventories of crude have been drawn down to levels more typical of recent years. January's imports of crude oil, at 4.6 million B/D, are down roughly 800 thousand B/D from the recent-year record of 5.4 million B/D set last August. Product imports, however, jumped to almost 2.4 million B/D for January, the highest level in almost four years.

Of the over 570 thousand B/D increase in product imports over last January, distillate fuel oil was the only major product to contribute significantly to the gain with a rise of 131 thousand B/D, year to year, to 328 thousand B/D—a recent-year high for the month. Imports of residual fuel oil and of gasoline and components were about even. Though increases for other products, such as LPGs, also were partly responsible for January's high level of product imports, it appears that bolstering of feedstock supplies for further processing with imported material also accounted for a major portion of January's increase.

Refinery Operations

YIELDS EMPHASIZE DISTILLATE AND RESIDUAL FUEL OIL.

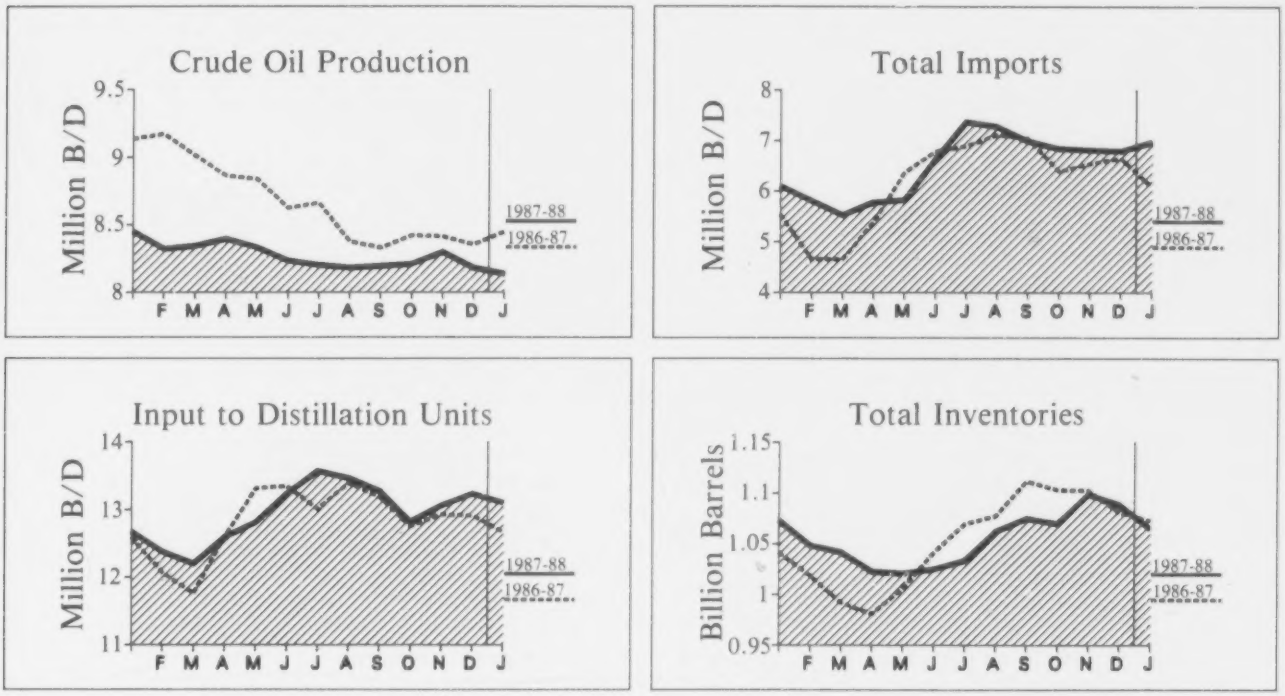
Refinery yields emphasized distillates and residual fuel oil in January, in response to strong deliveries of those products. Thus, though distillate production was down from December's recent-year record of nearly 3.3 million B/D, it was up by over 9 percent from a year ago and still exceeded 3.0 million B/D. Residual fuel oil production, too, rose nearly 10 percent, surpassing 1 million B/D for the first time in two years. Gasoline output rose less than a percent over last January's level.

January's utilization rate of 83.5 percent continued in the range of the past several months. Since last June, utilization has been at 83 percent or higher for all months except October, when seasonal refinery turnarounds reduced runs. This contrasts with the pattern as recently as three years ago, when for a similar period, utilization averaged only about 77 percent.

Inventories

DISTILLATE STOCKS ONLY A SMALL PART OF SEASON'S SUPPLY. Total inventories fell 24 million barrels in January, in line with typical January stock movements; declines for distillate and crude oil were major contributors to the drop. Despite the cold weather and unusually high deliveries, distillates' 12 million barrel decline was within the range of recent Januaries and provided only about a tenth of the month's supplies. In fact, January's closing distillate inventories, at 125 million barrels, were nearly even with last September's 127 million barrels, so that on a net basis, inventories have actually provided very little of the nearly 400 million barrels of distillates supplied so far this heating season. Gasoline stocks' 10 million barrel increase was also within the range of recent experience for January.

Crude oil stocks declined for the second month in a row, falling another 12 million barrels after a buildup late last year. This has brought crude oil stocks back down to 339 million barrels, closer to levels typical of the past several years.



1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 543 million barrels as of January 31, 1988).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	JANUARY			YEAR-TO-DATE		
	1988[1]	1987[2]	% Change	1988[3R]	1987[2]	% Change
Products Supplied:						
Total motor gasoline	6,755	6,469	4.4			
Finished leaded motor gasoline*	1,287	1,695	(24.1)			
Finished unleaded motor gasoline*	5,468	4,774	14.5			
Naphtha-jet	182	166	9.6			
Kerosine-jet	1,396	1,152	21.2			
Distillate fuel oil	3,685	3,259	13.1			
Residual fuel oil	1,532	1,462	4.8			
All other oils[4]	4,279	4,115	4.0			
Reclassified[5]	- 309	- 240	28.8			
Total domestic products supplied	17,520	16,383	6.9			
Exports	689	829	(16.9)			
Total products supplied	18,209	17,212	5.8			
Supply:						
Domestic production:						
Crude oil[6]	8,134	8,447	(3.7)			
Natural gas liquids	1,661	1,592	4.3			
Other supply[7]	685	783	(12.5)			
Total domestic supply	10,480	10,822	(3.2)			
Imports:	10/	10/				
Crude oil, total	4,598	4,293	7.1			
Canadian	602	567	6.2			
Other	3,996	3,726	7.2			
Products, total	2,373	1,801	31.8			
Residual fuel oil	653	667	(2.1)			
Other	1,720	1,134	51.7			
Total imports	6,971	6,094	14.4			
Total supply	17,451	16,916	3.2			
Stock change, all oils	- 758	- 296	XXXX			
Refinery Operations						
Input to crude oil distillation units	13,106	12,672	3.4			
Operable capacity	15,697	15,638	0.4			
Refinery utilization (%)[8]	83.5%	81.0%	3.1			
Crude oil runs	12,965	12,570	3.1			

Stocks (millions bbls.)	1988	1987	1987[2]	% Change from....	
	Jan. 31[9]	Dec. 31[9]	Jan. 31	Previous Month	Year Ago
Crude oil 10/	338.6	350.5r/	333.7	(3.4)	1.5
Unfinished oils	95.4	92.0r/	94.7	3.7	0.7
Total motor gasoline**	237.7	227.4r/	249.9	4.5	(4.9)
Finished leaded motor gasoline*	55.1	54.4	70.9	1.3	(22.3)
Finished unleaded motor gasoline*	143.5	135.1r/	138.4	6.2	3.7
Naphtha-jet	7.4	7.2	7.4	2.8	-
Kerosine-jet	38.4	43.7r/	42.7	(12.1)	(10.1)
Distillate fuel oil	124.6	136.5r/	141.4	(8.7)	(11.9)
Residual fuel oil	45.0	46.3r/	45.0	(2.8)	-
All other oils	178.1	185.1r/	157.0	(3.8)	13.4
Total all oils	1,065.2	1,088.7r/	1,071.8	(2.2)	(0.6)

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source:
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

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Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

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MARCH 16, 1988

FEBRUARY 1988

SUMMARY

After January's unusually large year-to-year jump in deliveries, February's 2.5 percent, 417 thousand B/D increase was closer to estimated trends in actual consumption. The main contributors to the increase were motor gasoline, up 2.6 percent from last February, and the "other oils" category, continuing its strong growth with an increase of over 5 percent.

Although both distillate and kerosine jet fuel deliveries in February were less than estimated consumption trends indicate, January deliveries of both products had been exceptionally strong. Distillates were about even with last February, while kerosine jet fuel deliveries actually fell year to year. For the second month in a row, residual fuel oil deliveries rose over year-ago levels, though only by 2 percent; this contrasts with the annual decline for 1987 of nearly 12 percent.

Crude oil production continues to show declines, decreasing 1.8 percent from last February; in the past two years it has fallen 11 percent as the net result of the lower 48's 1.1 million B/D, 16 percent decline and a 150 thousand B/D increase for Alaska. Petroleum imports receded slightly during February to 6.7 million B/D from January's 7 million B/D. However, the slippage was almost entirely in products, including a decline for distillates in response to a moderating of deliveries from the previous month and the approach of the end of the heating season. Total imports so far this year have averaged one third higher than those of two years ago.

The moderation in distillate deliveries also led to a lessening in refinery emphasis on output of that product—but production of distillate still rose over last February by over 4 percent. Total inventories declined by 17 million barrels during the month, about in line with the average February drop of the previous five years; distillate stocks' 15 million barrel decline was also close to the recent-year average.

PRODUCT SUPPLIED [1/]

Gasoline

ADJUSTED GROWTH CONTINUES AT ABOUT 2 PERCENT.

Gasoline deliveries rose 2.6 percent or 177 thousand B/D in February, following an over 4 percent jump for January. January's increase, however, was partly due to below-trend deliveries for January of the previous year. Once adjusted for this, the year-to-date increase in gasoline deliveries matches estimated consumption growth of roughly 2 percent and continues the rate of increase experienced in 1987.

Continued improvement in the average fuel efficiency of the vehicle fleet has held the annual growth rate of motor fuel consumption (including diesel) between 2.2 and 3.2 percent per year over the past five years. However, miles traveled have continued to grow at almost the same 3.8 percent annual rate as the economy as a whole. On a per capita basis, the 20 percent rise in total miles traveled since 1982 works out to a 14 percent increase per person, or nearly 1,000 miles.

It is true that the proportion of the population of driving age has increased over the period and the labor force participation rate has risen as well, both contributing to the increase in travel per capita. But even on this basis, miles per driving-age population have risen 13 percent in five years, and miles per civilian employed have risen 6 percent. At least part of the explanation for the growth in miles traveled lies in the dramatic decline in fuel costs per mile resulting from the combined effects of improved fuel efficiency and lower fuel prices—adjusted for inflation, travel costs are only about half what they were in 1982.

Distillates

GROWTH RECEDES FROM JANUARY'S HIGH LEVEL.

February's nearly flat performance for distillate deliveries versus a year ago falls short of what other indicators of consumption show. However, in view of January's unusually strong, 13 percent surge, it is likely that distributors and end users in February relied to a greater extent than usual on inventories acquired earlier.

The nation as a whole averaged about 12 percent colder than last February, but weather in New England and the Mid-Atlantic states, major heating-oil-consuming regions, were warmer than last February; thus, the overall effect of weather on the year-to-year comparison amounted to only 10 to 15 thousand B/D for the month.

API ESTIMATES

	FEBRUARY		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	17.1	2.5	17.3	4.8
Crude oil production[2/]	8.2	(1.8)	8.2	(2.8)
Total imports[3/]	6.7	14.8	6.8	14.6
Stocks (million bbl)[3/]	1,026	(2.0)	na	na

Strength in the transportation sector is apparently continuing, with trucking traffic up about 7 percent in January, (latest available) and rail car loadings up 4 percent for February on the continued strength of grain shipments. Together, these added an estimated 80-100 thousand B/D to February's consumption levels over a year ago. With little net change in the remaining sectors, we estimate that February's underlying growth in distillate consumption averaged about 2.5 percent excluding the effect of weather.

Residual Fuel Oil

YEAR-TO-YEAR RISE REPEATED IN FEBRUARY.

Residual fuel oil deliveries were estimated at 1,500 thousand B/D in February, down 2.1 percent from January but up 2.0 percent from February 1987. Despite the unusual factors that accounted for the high January deliveries, the decline from last month was less than half of the February norm. As a result, February deliveries, like those of January, continue to exceed last year's levels. The size of the year-to-year increase, however, was significantly smaller than that for January, suggesting a moderation of the unusual conditions at the beginning of the year. In general, delivery patterns appear to reflect the competitive nature of the fuel in the electric utility and industrial markets.

On average, the electric utilities sector is believed to have consumed heavy fuel oil at rates perhaps 5-10 percent higher than those of last year. While some of this was due to colder weather, residual fuel oil continued to be price-competitive in some regions, apparently delaying part of the seasonal switch back to natural gas. Weather-related factors are also believed to have contributed to year-to-year increases in commercial and institutional deliveries of fuel oil.

Deliveries of residual fuel oil to industrial markets, however, are believed to have declined slightly from last month's levels but remain slightly above levels of a year ago. The loss of the fuel's January penetration in southern California due to natural gas curtailments is regarded as the most important factor behind the month-to-month contraction. Moreover, fuel oil which was burned in January as a result of the high cost of gas is thought to have lost some of its competitive edge in some industrial plants with dual-fired capability as a result of the 15-20 percent decline in spot gas prices.

Kerosine Jet Fuel

AFTER A SURGE IN JANUARY, DELIVERIES FALL.

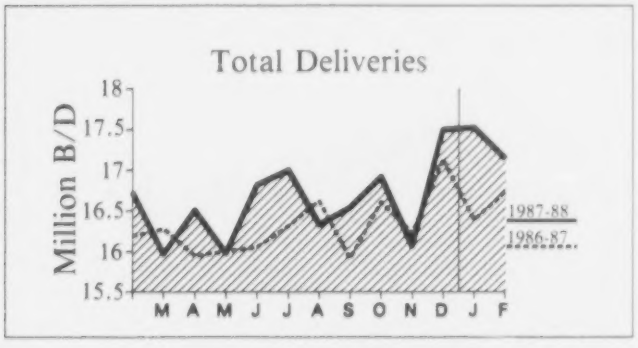
Deliveries of kerosine jet fuel slowed from January's extremely high levels—to the point of declining 3.5 percent from last February. In view of January's jump in deliveries of over 20 percent, the decline was perhaps not too surprising. Apparently, a large portion of January's surge in buying was for secondary inventories (in addition to demand for blending purposes in distillate markets), which were drawn upon during February.

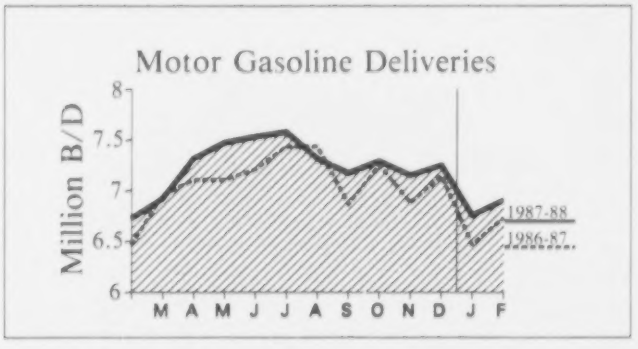
Air traffic continues to rise, but at a less rapid pace than for much of last year. January's increase in domestic seat-miles amounted to less than 3 percent; without the continued strong showing for international traffic, up 18 percent, total passenger traffic would have risen significantly less than the 5.5 percent actually achieved. Year-to-year gains in air freight averaging over 15 percent in recent months have also added to overall air traffic growth.

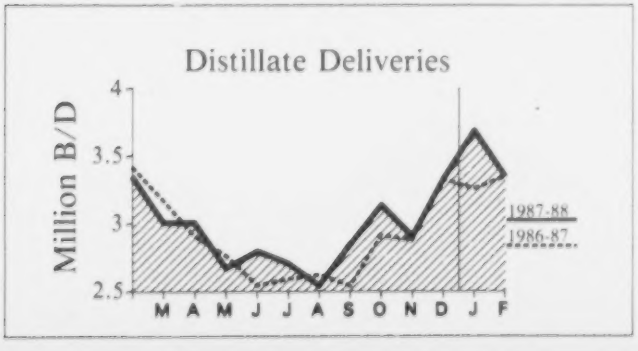
Other Oils

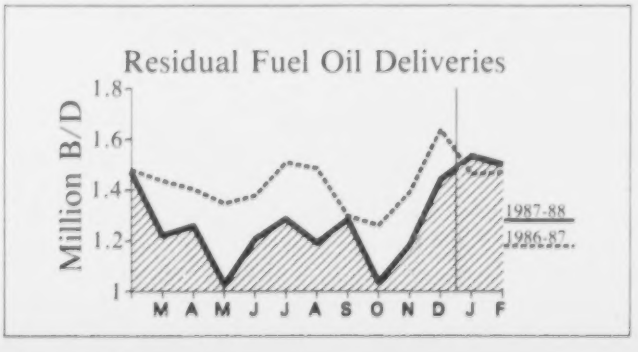
STRONG GROWTH MAINTAINED.

"Other oils" deliveries for February are estimated to be 4,224 thousand B/D, down 1.3 percent from January. Despite the spike in January deliveries caused by the cold weather, this decline was less than half the February seasonal norm. As a result, February deliveries were a robust 5.5 percent higher than in February 1987.









The petrochemical feedstock market continued to show significant strength as well as on-going shifts in relative demand between competing feedstocks. Ethane deliveries, driven by strong olefin demand, are continuing to show apparent increases. The recent rise in ethane's wholesale price reflects substantial drawdowns in inventories, which have reached historical lows. Propylene, still the dominant feedstock, is continuing to lose ground to naphtha and gasoil in the ethylene market due to the continuing decline in propylene's co-product values, likely resulting in a moderation of the increase in deliveries of that feedstock. Nonetheless, we believe that petrochemical feedstock demand, driven primarily by export-led demand for the finished product slates, continues to account for the bulk of the year-to-year increase in other oils deliveries.

In contrast to the January pattern, asphalt and road oil deliveries may have made a smart recovery in February, especially in the latter part of the month. Refinery gas production and consumption levels are believed to have been slightly less than last month's levels, but less than the normal monthly decline of more than 4 percent for this product. As a result, a year-to-year deliveries increase, due to correspondingly higher gasoline production levels, likely contributed to the continued high level of "other oils" deliveries.

SUPPLY [1/]

Production

ALASKA'S SHARE KEEPS RISING.

Alaska's role as supplier of one fourth of domestic crude oil production is becoming firmly established as lower 48 output continues to decline, as it did in February. Since November, production in Alaska has been typically running at 2 million B/D or more; February's production averaged nearly 2.1 million B/D. Lower 48 production, however, slipped to 6.1 million B/D for the month, more than 16 percent or 1.1 million B/D below the level of only two years ago.

The increase in Alaska's share, though accelerated by the dramatic falloff in lower 48 production since the major price decline of 1986, has been taking place for the past decade. The beginning of production at Prudhoe Bay in late 1977 immediately gave Alaska a 14 percent share for the following year. Since that time, that state's share has been moving steadily upward, even in the 1981-1985 period when, following crude oil price decontrol, lower 48 production held steady and even increased.

The process by which Alaska has reached this level of production has been a long one, reflecting the lead times needed to explore and develop petroleum resources in frontier regions. The Prudhoe Bay field, for example, had been discovered nearly a decade before production began. Kuparuk, the second largest field, was discovered in 1969 but production did not begin until late 1981. Endicott, which began production last October and is now the third largest field, also took nearly a decade after discovery to complete exploration, permitting, and development work.

Imports

UP BY A THIRD SO FAR THIS YEAR VERSUS EARLY 1986.

Imports, which in January had been even with the 7 million B/D average of the second half of 1987, decreased to 6.7 million B/D in February. However, the decline was almost entirely due to a decrease in product imports, with crude oil imports continuing in the 4.5-4.6 million B/D range of the past several months. Over the longer term, rising consumption and falling production have increased imports so far this year by one third since two years ago.

Distillate imports, in particular, paralleling the pattern in deliveries, slipped by 100 thousand B/D from January's above-average level to 228 thousand B/D, essentially the same as for February a year ago. Imports of motor gasoline and components for February amounted to 347 thousand B/D, down slightly from last February. Residual fuel oil imports, however, in a break from the pattern of most of last year, showed a year-to-year increase of 93 thousand B/D or over 15 percent.

Refinery Operations

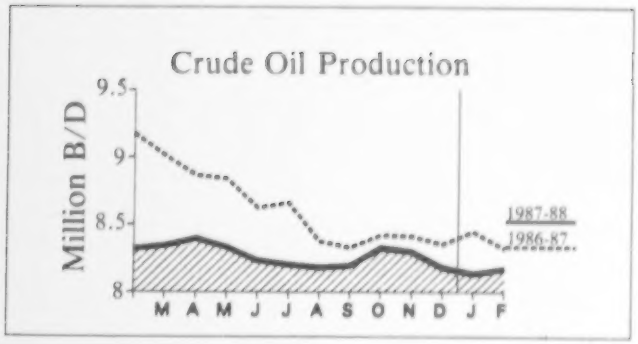
DISTILLATE OUTPUT DOWN FROM JANUARY, UP FROM LAST YEAR.

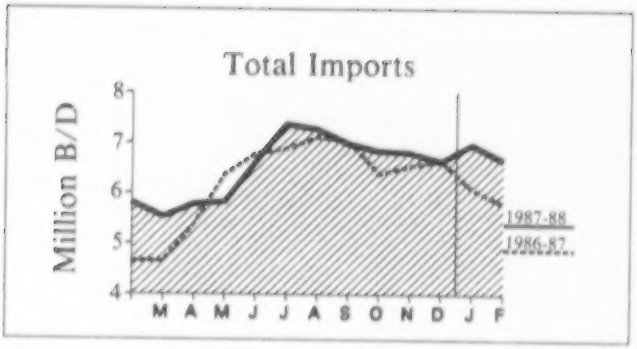
After running throughout the winter months at over 83 percent utilization, refinery activity slackened slightly in February to 81.9 percent as the end of the major part of the heating season approached. Distillate yields in February fell by about 2 percentage points from January's strong level, but at close to 21 percent of input to distillation units, were still in line with the average February yields of the past several years. Even with the reduced emphasis on distillate, production of this product exceeded last February's level by over 4 percent. Gasoline production was also up by almost 5 percent from a year ago, while residual fuel oil production jumped over 19 percent in a continuation of January's high level of output for this product.

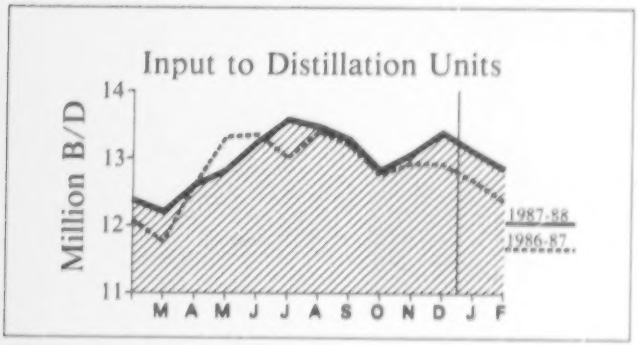
Inventories

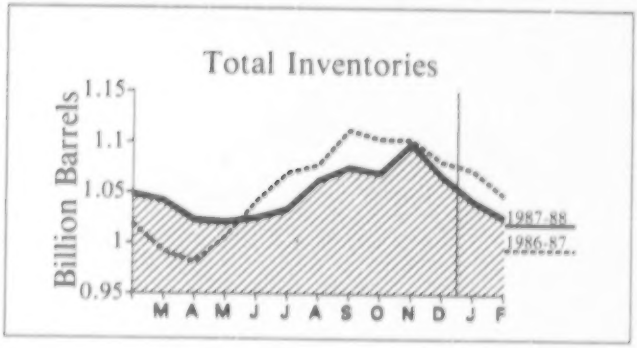
TOTAL STOCKS FALL 17 MMB, MAINLY DUE TO DISTILLATES.

Total stocks fell 17 million barrels during February, mostly because of distillates' 15 million barrel decrease—both declines being typical for the month. Motor gasoline inventories were essentially unchanged. Crude oil stocks, after falling by 24 million barrels during December and January to levels more typical of the past several years, ended the month only slightly above January's closing level.









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ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	FEBRUARY			YEAR-TO-DATE		
	1988[1]	1987[2]	% Change	1988[3R]	1987[2]	% Change
Products Supplied:						
Total motor gasoline	6,903	6,726	2.6	6,825	6,591	3.6
Finished leaded motor gasoline*	1,380	1,735	(20.5)	1,331	1,714	(22.3)
Finished unleaded motor gasoline*	5,523	4,991	10.7	5,494	4,877	12.7
Naphtha-jet	226	219	3.2	203	191	6.3
Kerosine-jet	1,180	1,223	(3.5)	1,292	1,185	9.0
Distillate fuel oil	3,350	3,347	0.1	3,524	3,301	6.8
Residual fuel oil	1,500	1,470	2.0	1,517	1,466	3.5
All other oils[4]	4,224	4,005	5.5	4,252	4,063	4.7
Reclassified[5]	- 245	- 269	(8.9)	- 278	- 254	9.4
Total domestic products supplied	17,138	16,721	2.5	17,335	16,543	4.8
Exports	900	991	(9.2)	791	905	(12.6)
Total products supplied	18,038	17,712	1.8	18,126	17,448	3.9
Supply:						
Domestic production:						
Crude oil[6]	8,168	8,320	(1.8)	8,150	8,387	(2.8)
Natural gas liquids	1,623	1,625	(0.1)	1,643	1,607	2.2
Other supply[7]	1,001	1,084	(7.7)	839	926	(9.4)
Total domestic supply	10,792	11,029	(2.1)	10,632	10,920	(2.6)
Imports:						
Crude oil, total	4,560 10/	3,852 10/	18.4	4,580 10/	4,083 10/	12.2
Canadian	657	537	22.3	627	553	13.4
Other	3,903	3,315	17.7	3,953	3,530	12.0
Products, total	2,103	1,953	7.7	2,243	1,873	19.8
Residual fuel oil	705	612	15.2	678	641	5.8
Other	1,398	1,341	4.3	1,565	1,232	27.0
Total imports	6,663	5,805	14.8	6,823	5,956	14.6
Total supply	17,455	16,834	3.7	17,455	16,876	3.4
Stock change, all oils	- 583	- 878	XXXX	- 671	- 572	XXXX
Refinery Operations						
Input to crude oil distillation units	12,850	12,377	3.8	12,983	12,532	3.6
Operable capacity	15,697	15,600	0.6	15,697	15,620	0.5
Refinery utilization (%)[8]	81.9%	79.3%	3.3	82.7%	80.2%	3.1
Crude oil runs	12,749	12,296	3.7	12,861	12,440	3.4

Stocks (millions bbls.)	1988		1987[2]	% Change from	
	Feb. 29[9]	Jan. 31[9]	Feb. 28	Previous Month	Year Ago
Crude oil 10/	340.7	338.7r/	332.0	0.6	2.6
Unfinished oils	96.8	95.5r/	102.7	1.4	(5.7)
Total motor gasoline**	238.5	237.9r/	250.7	0.3	(4.9)
Finished leaded motor gasoline*	51.4	55.1	68.9	(6.7)	(25.4)
Finished unleaded motor gasoline*	148.4	143.7r/	138.2	3.3	7.4
Naphtha-jet	6.4	7.4	6.7	(13.5)	(4.5)
Kerosine-jet	37.4	38.4	41.2	(2.6)	(9.2)
Distillate fuel oil	109.7	124.6	123.5	(12.0)	(11.2)
Residual fuel oil	44.2	45.1r/	38.1	(2.0)	16.0
All other oils	152.2	155.2r/	152.3	(1.9)	(0.1)
Total all oils	1,025.9	1,042.8r/	1,047.2	(1.6)	(2.0)

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum [illegible] nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline [illegible] or [illegible].

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Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 12, No. 3

APRIL 13, 1988

MARCH 1988

SUMMARY

With one of the largest year-to-year increases in more than two years, March's strong deliveries, when combined with the high level of deliveries earlier in the quarter, may point to some increase in the growth in demand. For the month, the 1.3 million B/D, 8 percent increase sprang from larger-than-typical increases for most major products; the quarter's increase was almost 900 thousand B/D or 5.4 percent. Consumption growth for the first quarter, nevertheless, is estimated at about half of this.

Though it is unusual for deliveries' growth rate over a three-month period to differ from underlying trends by as much as implied for this year's first quarter, we are reluctant to believe that consumption has shifted upwards this sharply in the past three months. By most accounts, the economy, though apparently not faltering as some had earlier feared, was, at best, continuing along somewhere near its previous growth path in the first quarter; petroleum prices, though weakening somewhat during the quarter, did not decline enough to have a major impact on consumption for most products. Analysis of end-use markets continues to indicate overall growth in consumption on the order of 2.5 to 3 percent.

For March, gasoline deliveries rose 5.5 percent, year-to-year, versus estimated consumption growth on the order of 2 percent. Distillate deliveries jumped almost 14 percent, partly reflecting possible effects of new excise tax collection procedures as of April 1. Residual fuel oil deliveries rose year-to-year for the third month in a row, the nearly 9 percent increase continuing a reversal of last year's decline, while deliveries of other oils are also estimated to have risen about 9 percent. Although kerosine jet fuel managed only a weak, 2 percent rise in March, the quarter's nearly 6 percent increase in deliveries corresponded with estimated growth in air traffic.

Imports' nearly 16 percent rise for the quarter is roughly the same as experienced in the first three months of last year, but the relative roles of declining domestic production and rising consumption have shifted. In last year's first quarter, falling domestic production accounted for much of imports' rise. Though lower 48 production so far this year continues to decline at about the same quarter-to-quarter rate that it has since late 1986, recent additions to capacity in Alaska have partially compensated for the declines in the rest of the U.S. But while the decline in total crude production has been less, estimated demand growth, even though less than the increase in deliveries, has so far been greater this year than last.

Refinery utilization for the quarter was up by almost 4 percentage points over a year ago; if idle capacity is excluded, utilization of capacity in actual operation has been running in the high 80s. Despite the high level of deliveries, total inventories declined only 15 million barrels, about 10 million barrels less than the recent-year average.

PRODUCT SUPPLIED[1/]

Gasoline

DELIVERIES RISE 3.9 PERCENT FOR THE QUARTER.

Motor gasoline deliveries were up 5.5 percent for March and 3.9 percent for the quarter —both significantly above the average increase of 2.1 percent for all of 1987. Even with continued moderate economic growth and a modest softening in retail prices over the past half year, the increases in deliveries appear higher than what other indicators suggest for consumption. Travel has been rising at a 3.5 to 4 percent annual rate (January's nearly 5 percent rise in miles traveled was due partly to comparison with below-trend travel for the year-ago month). Efficiency gains from the continued replacement of older vehicles with new, more fuel-efficient models imply a growth rate for gasoline consumption of about half that rate, in the neighborhood of 2 percent.

The decline in retail gasoline prices of the past six months has been moderate in comparison with fluctuations of the previous two years, and, in fact, partly reflects normal seasonal patterns. Since August, unleaded regular has fallen roughly 8 cents per gallon—a little less than half of it seasonal—after rising about 17 cents from a November 1986 low point. With the most recent decline, prices are nearly 30 cents lower than in late

API ESTIMATES

	MARCH		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	17.2	8.0	17.2	5.4
Crude oil production[2/]	8.2	(1.9)	8.2	(2.2)
Total imports[3/]	6.7	20.9	6.7	15.9
Stocks (million bbl)[3/]	1,021	(1.9)	na	na

1985, roughly paralleling the decline in crude oil costs over that period. Adjusting for inflation, this amounts to almost a 30 percent decline in real prices compared with a little over two years ago.

Distillates

MARCH JUMP MOSTLY UNEXPLAINED BY TRENDS IN USAGE. For March, distillate deliveries jumped 13.7 percent or over 400 thousand B/D from a year ago, an unusually large change even for the sometimes volatile deliveries of this product. The month's increase helped to bring the rise for the quarter to 7.5 percent.

Consumption-related factors can explain only a little more than a fourth of March's unusually large rise. With weather only about 5 percent colder than last year for a month at the end of the heating season, the effect on the year-to-year comparison is estimated at only about 10 to 20 thousand B/D. Transportation consumption, although continuing to grow significantly, cannot fully account for the remaining gap. Data on truck traffic growth is overstated because of methodological problems having to do with mergers, but economic activity nevertheless indicates strong demand for on-highway diesel; for the first two months of this year, industrial production has risen an average 6 percent over the year-ago period, and manufacturer's shipments, nearly 8 percent. Higher truck traffic, together with an increase in rail traffic averaging about 7 percent, are estimated to have added nearly 100 thousand B/D to distillates' year-to-year increase for March.

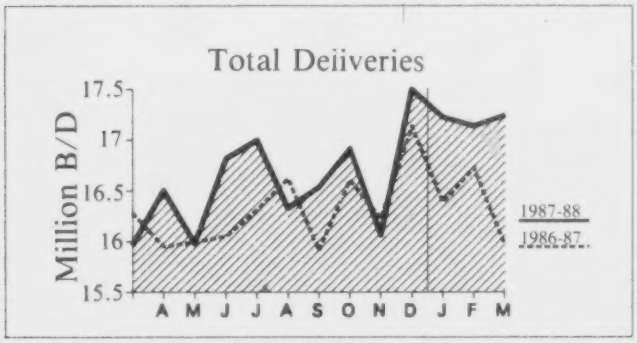
Activity in other sectors, for the most part, have little to add to the month's comparison; industrial usage may be up slightly, but construction activity has been flat compared with last year and planned farm acreage has been holding steady. Consumption growth therefore appears to be much less than March's increase in deliveries. Given the changes in the collection of diesel excise taxes scheduled for April 1, it is probable that some tax-exempt purchasers sought to buy fuel beyond current needs during March, accounting for at least part of the month's unusually large deliveries increase.

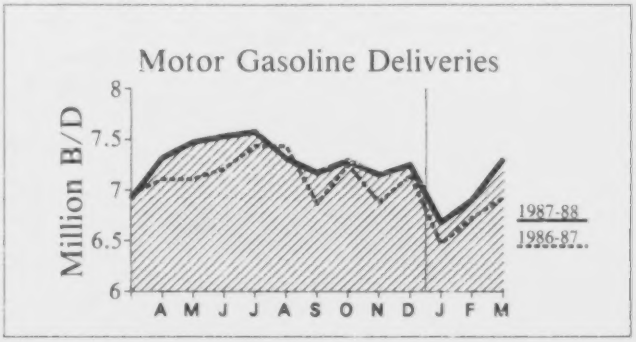
Residual Fuel Oil

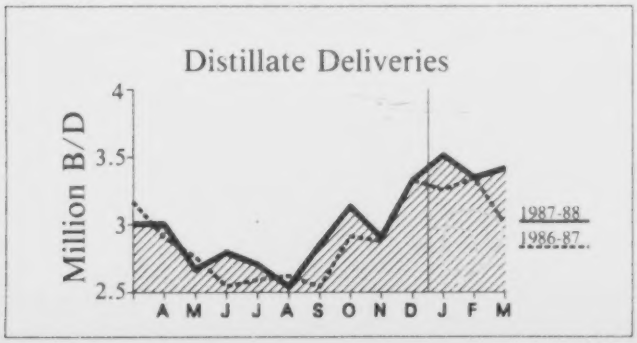
REVERSAL OF 1987'S DECLINE CONTINUES. Residual fuel oil deliveries were estimated to be 1,326 thousand B/D, down 11.6 percent from February but up 8.7 percent from March 1987. Although substantial, the decline from the previous month is somewhat less than the seasonal norm, even though February deliveries were also substantially higher than last year. As a result, March is the third consecutive month in which deliveries have exceeded those of the previous year.

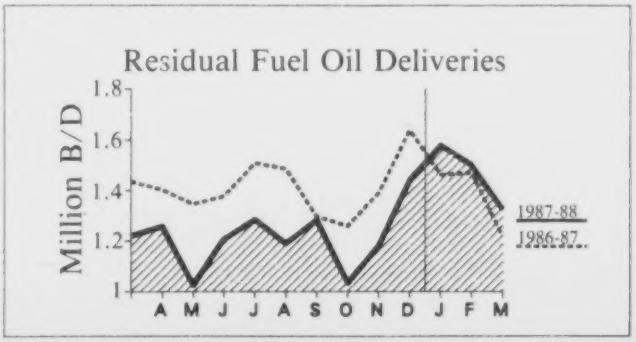
Continued high demand by the electric utility sector is believed to have accounted for some of the strength in residual fuel oil deliveries. Some utilities experienced spot curtailments of natural gas as a result of reduced transportation by some pipelines, requiring occasional switching to heavy oil as a marginal fuel. Although residual fuel prices, on average, were somewhat higher than natural gas prices for much of the month, some utilities reported that oil was less expensive than natural gas, enabling fuel oil to maintain its share of that market. The weather, which was close to the seasonal norm for the month and only slightly colder than a year ago, had little effect on deliveries of heavy fuel oil to this sector.

Deliveries to the industrial sector were apparently slightly greater than those of the previous month, because continuing increases in industrial production are believed to have maintained the demand for heavy fuel oil in this sector.









Kerosine Jet Fuel

QUARTER'S GROWTH IN LINE WITH AIR TRAFFIC.

In contrast with the other major fuels, deliveries of kerosine jet fuel were not particularly strong in March, rising only 2 percent—following even weaker performance in February. However, with January's unusually large surge included, the quarter's year-to-year growth averages out to almost 6 percent against first quarter 1987 data, similar to the estimated increase in air traffic.

Kerosine jet fuel deliveries, however, have not always corresponded well with air traffic growth, even on a longer term basis. For example, for 1987, Department of Energy data showed only a 3.6 percent increase in deliveries despite an increase in miles flown of about 8 percent. As noted in the past, there has been concern that imported jet fuel removed from bonded storage may not have been fully reflected in published deliveries data. A Department of Energy investigation has found that this, in fact, has been the case, particularly towards the latter part of 1987; the Department is now taking steps to include these quantities. Revised data for 1987 imports are higher than previously published figures by a relatively modest 16 thousand B/D for the first quarter, rising to 44 thousand B/D by the fourth quarter—enough to add an average 2.6 percent to deliveries for last year as a whole. Not all of this, however, would translate into a higher deliveries growth rate for last year, since deliveries for 1986 may have been understated as well.

Other Oils

STRONG MARCH PUTS QUARTER'S INCREASE AT 5.8 PERCENT.

Deliveries of other oils for March are estimated to be 4,118 thousand B/D, representing a decrease of 2.5 percent from February's levels but an increase of 9.1 percent from March 1987. The decline from the previous month is somewhat less than the seasonal norm, despite the high level of deliveries recorded in February. This implies continued strength in the other oils category on a seasonally-adjusted basis.

Sustaining a pattern of the last several months, deliveries of petrochemical feedstocks are believed to have dominated the other oils category. Feedstock demand appears to have been bolstered by both continuing increases in domestic industrial production and export demand for petrochemical products, especially to the Pacific Rim, as a result of the continuing slide in the dollar. Propane and ethane remain strong favorites as feedstocks, but naphtha deliveries are also believed to have increased substantially during the month. Because weather did not differ significantly from historical patterns, demand for space-heating fuels was believed to have been in line with seasonal expectations, contributing little to the surge in other oils deliveries.

Increased asphalt and road oil deliveries, supported by unusually high imports, are also believed to be contributing to the high level of other oils deliveries. Although high activity is not normally expected at this time of year, several regions have apparently already resumed building and maintenance programs with the help of funding provided by earlier passage of the Federal highway bill.

SUPPLY[1/]

Production

LOWER 48'S DECLINE SHOWS NO SIGN OF SLOWING.

Though additions to capacity in Alaska have provided some incremental production there, output in the lower 48 has continued to decline at much the same quarter-to-quarter rate of the past year or more.

When crude oil prices collapsed two years ago, lower 48 production dropped rapidly. In the second and third quarters of that year, the quarter-to-quarter decline in production outside Alaska, expressed at an annual rate, averaged about 16 percent.

From then until the fourth quarter of 1987, with crude oil prices stabilizing and even recovering slightly at times, that rate of decline slowed to an average 4.5 percent or 300 thousand B/D per year, a rate maintained in this year's first quarter.

The continued decline in lower 48 production has come at a time when drilling activity has been experiencing only a modest recovery. Although API's estimated oil well completions for the first quarter were up about 16 percent over a year ago, they represented only half the rate of drilling of the same period two years ago.

Imports

RISE CONTINUES, REASONS SHIFT.

Total imports for the first quarter were up over 900 thousand B/D or nearly 16 percent versus first quarter 1987, roughly the same size increase experienced one year earlier. Altogether, imports have risen by more than a third in the past two years, though the combination of demand growth and production declines responsible have differed. From first quarter 1986 to first quarter 1987, falling production accounted for most of the increase in imports, with rising consumption playing a much smaller role. Even recognizing that this year's first quarter surge in deliveries of nearly 900 thousand B/D likely overstates consumption increases, the relative roles of demand growth and production declines have nevertheless been reversed so far this year. In the more recent comparison, the increase in Alaskan production helped to hold the decline in U.S. output to about 150 thousand B/D for the quarter, but higher growth in consumption, estimated at 400 to 500 thousand B/D, has been taking a more prominent role in increasing the need for imports.

Though crude oil imports have continued in the 4.5 to 4.7 million B/D range since December, products again declined month-to-month in March, to about 2.0 million B/D, from their unusually high level in January. Year to year, however, product imports were still higher than last year by 7.4 percent or almost 140 thousand B/D. With imports of gasoline and components rising only 7 thousand B/D, distillates falling 20 thousand B/D, and residual fuel oil increasing 22 thousand B/D, most of the increase appears to be in partially-refined material for further processing. In January, the latest month for which data are available, imports of unfinished oils had risen over 200 thousand B/D, year to year.

Refinery Operations

UTILIZATION 6 POINTS ABOVE LAST MARCH.

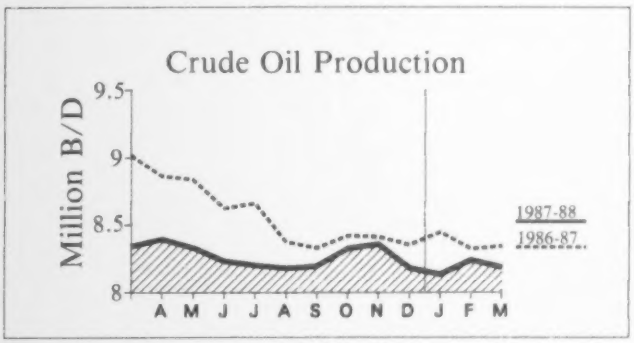
From February to March, input to distillation units rose by about 330 thousand B/D, returning to a level similar to January's. On the basis of operable capacity, March's utilization rate was 84 percent, up more than 6 points over last March. However, when account is made of some capacity which is classified as operable but is currently idle, refinery capacity in actual operation amounts to only about 15 million B/D. Calculated on this basis, utilization rates for March and recent previous months would have ranged for the most part from 87 to 89 percent—not far short of the historic highs in the low 90s achieved in the early 1970s. Utilization of downstream units is no doubt even greater.

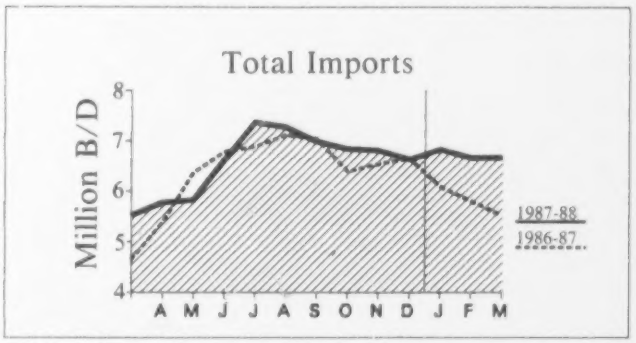
With the unusually strong distillate deliveries for March, refineries delayed the seasonal reorientation towards gasoline and responded with yield patterns tilted more towards distillate than usual for the month. With input rising over 8.2 percent, year to year, gasoline production increased only about 3 percent while distillate output jumped more than 14 percent. Residual fuel oil production, reflecting the recent growth in deliveries, also rose by almost 8 percent.

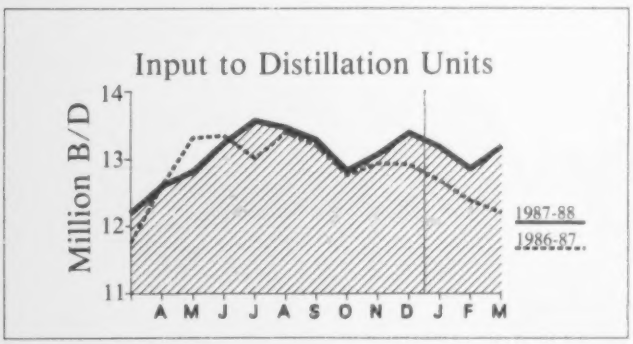
Inventories

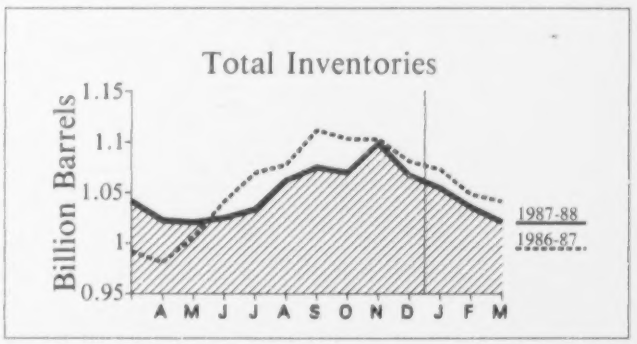
DISTILLATE STOCKS END MONTH AT 92 MILLION BARRELS.

Total inventories fell 15 million barrels in March, roughly 10 million barrels less than the normal pattern. Distillate stocks declined 17 million barrels to 92 million barrels. Though this was 4 million barrels less than the recent-year, end-of-season low set in 1986, no major supply problems have been reported, suggesting that the "minimum operating inventory" for distillate may be even lower than some have estimated as the role of inventories in distillate supply has continued to diminish. Over the October-March period, distillate stocks supplied only 6 percent of supplies, despite a strong increase in deliveries for the season. Current refinery production supplied 89 percent, and net imports, the remainder. Gasoline stocks in March declined 8 million barrels, about in line with the recent-year average for the month.









1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 545 million barrels as of March 31, 1988).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	MARCH			YEAR-TO-DATE		
	1988[1]	1987[2]	% Change	1988[3R]	1987[2]	% Change
Products Supplied:						
Total motor gasoline	7,303	6,921	5.5	6,969	6,705	3.9
Finished leaded motor gasoline*	1,492	1,771	(15.8)	1,386	1,733	(20.0)
Finished unleaded motor gasoline*	5,811	5,150	12.8	5,583	4,972	12.3
Naphtha-jet	209	193	8.3	202	192	5.2
Kerosine-jet	1,151	1,128	2.0	1,233	1,166	5.7
Distillate fuel oil	3,418	3,005	13.7	3,438	3,199	7.5
Residual fuel oil	1,326	1,220	8.7	1,469	1,381	6.4
All other oils[4]	4,118	3,775	9.1	4,192	3,962	5.8
Reclassified[5]	- 283	- 276	2.5	- 278	- 261	6.5
Total domestic products supplied	17,242	15,966	8.0	17,225	16,344	5.4
Exports	974	726	34.2	922	844	9.2
Total products supplied	18,216	16,692	9.1	18,147	17,188	5.6
Supply:						
Domestic production:						
Crude oil[6]	8,187	8,343	(1.9)	8,186	8,372	(2.2)
Natural gas liquids	1,606	1,607	(0.1)	1,599	1,607	(0.5)
Other supply[7]	1,278	998	28.1	1,137	951	19.6
Total domestic supply	11,071	10,948	1.1	10,922	10,930	(0.1)
Imports:						
Crude oil, total	4,660 10/	3,647 10/	27.8	4,594 10/	3,933 10/	16.8
Canadian	666	526	26.6	652	544	19.9
Other	3,994	3,121	28.0	3,942	3,389	16.3
Products, total	2,015	1,876	7.4	2,134	1,874	13.9
Residual fuel oil	574	552	4.0	671	610	10.0
Other	1,441	1,324	8.8	1,463	1,264	15.7
Total imports	6,675	5,523	20.9	6,728	5,807	15.9
Total supply	17,746	16,471	7.7	17,650	16,737	5.5
Stock change, all oils	- 470	- 221	XXXX	- 497	- 451	XXXX
Refinery Operations						
Input to crude oil distillation units	13,180	12,198	8.1	13,072	12,417	5.3
Operable capacity	15,697	15,663	0.2	15,770	15,635	0.9
Refinery utilization (%)[8]	84.0%	77.9%	7.8	82.9%	79.4%	4.4
Crude oil runs	13,026	12,085	7.8	12,920	12,318	4.9

Stocks (millions bbls.)	1988		1987[2]	% Change from ...	
	Mar. 31[9]	Feb. 29[9]	Mar. 31	Previous Month	Year Ago
Crude oil 10/	344.7	341.5r/	333.4	0.9	3.4
Unfinished oils	101.4	97.2r/	107.6	4.3	(5.8)
Total motor gasoline**	229.9	238.1r/	249.2	(3.4)	(7.7)
Finished leaded motor gasoline*	48.5	51.4	65.3	(5.6)	(25.7)
Finished unleaded motor gasoline*	144.4	147.9r/	140.5	(2.4)	2.8
Naphtha-jet	6.7	6.4	6.7	4.7	-
Kerosine-jet	38.9	37.3r/	41.4	4.3	(6.0)
Distillate fuel oil	91.6	108.8r/	110.0	(15.8)	(16.7)
Residual fuel oil	42.1	44.0r/	39.6	(4.3)	6.3
All other oils	165.6	162.2r/	152.5	2.1	8.6
Total all oils	1,020.9	1,035.5r/	1,040.4	(1.4)	(1.9)

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: January, U.S. Department of Energy, February-March, API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

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Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 12, No. 4

MAY 18, 1988

APRIL 1988

SUMMARY

After surprisingly strong deliveries in the first quarter, April broke the pattern with a nearly flat performance compared with one year earlier. Gasoline and distillate, both of which had experienced unusually large deliveries increases in the first quarter, reversed direction in April, declining 1.3 percent and 4.2 percent, respectively. Actual consumption has likely not been nearly so erratic as deliveries over the past several months, however, and actual usage of both products likely continued to grow in April. Movements in nonprimary storage probably account for much of the divergence between deliveries and consumption, and in particular, the April 1 change in diesel excise tax collection procedures apparently caused a shift of purchasing forward to March that would have otherwise have occurred later—helping to depress the most recent month's deliveries.

Deliveries of some products still increased in April, however. Kerosine jet fuel deliveries rose more than 4 percent, though if adjusted for underreported imports in 1987, the increase would be half that. Residual fuel oil continued its unbroken string of increases so far this year, rising 6.8 percent for the month versus a nearly 12 percent decline for last year as a whole.

Imports rose nearly 22 percent or close to 1.3 million B/D, with somewhat more than half going into a 22 million barrel increase in primary inventories. Current estimated consumption growth and production declines, however, still imply an underlying rate of growth for imports of roughly 10 percent per year. April's crude oil production was down more than 220 thousand B/D from a year ago and 1 million B/D from its level in early 1986.

With adequate gasoline inventories and recent strong deliveries of distillate, refinery yield patterns have been slower to shift away from distillate and towards gasoline so far this year. However, because of a 6 percent increase in refining activity over last April, gasoline production for the month was still the highest for April in over a decade.

PRODUCT SUPPLIED[1/]

Gasoline

APRIL DECREASE FOLLOWS STRONG FIRST QUARTER.

April's deliveries of gasoline declined 1.3 percent, year to year, in contrast with both the first quarter's above-trend increase and with an underlying estimated growth rate of 2 percent. Recent gains in income suggest that consumption has been growing at least as rapidly as last year. In the absence of significant price changes—and April's partly seasonal 3 cent rise put retail prices at about the same level as a year ago—changes in income are one major determinant of gasoline consumption. Real disposable personal income rose about 2.3 percent for the first quarter versus one year earlier, roughly a percent higher than in 1987 when gasoline deliveries were already rising at more than 2 percent per year.

Unleaded's share of deliveries has been steady at about 80 percent so far in 1988. Such an apparent lack of advance is not unusual at this time of year, though the reason is unclear. Year to year, however, unleaded's share still shows a 6.2 percentage point gain over last April. This is roughly in line with the 6.8 point increase for all of last year, an increase that had been strengthened in comparison with earlier years because of midgrade unleaded introductions in various markets.

Distillates

DESPITE WEATHER AND TRANSPORT GAINS, A DECLINE.

As with gasoline, April's distillate deliveries reversed their previous strong growth, falling more than 4 percent or 125 thousand B/D. If adjusted for weather, the year-to-year decline would have been even larger. Though nationally, temperatures averaged about normal for the month, compared with last year weather was about 9 percent colder, and more than that in major heating-oil-consuming regions. This added an estimated 50 thousand B/D to distillate consumption compared with last April.

However, April's weak deliveries are perhaps not too much of a surprise after the previous month's surge related to the change in federal excise tax collection for diesel fuel which became effective April 1. This undoubtedly had caused some affected buyers to move purchases forward to March that otherwise would have occurred in April or later.

Underlying consumption growth is estimated to be around 3 percent, mainly on the strength of increasing transportation

API ESTIMATES

	APRIL		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.5	(0.1)	17.1	4.6
Crude oil production[2/]	8.2	(2.7)	8.2	(2.0)
Total imports[3/]	7.0	21.9	6.9	18.6
Stocks (million bbl)[3/]	1,037	1.5	na	na

use. Farm use, though in general believed to be holding steady compared with last year, may have been somewhat stronger in April in view of planting rates for major grains, which were reported to be well ahead of normal.

Residual Fuel Oil

DELIVERIES UP FOR FOURTH MONTH IN A ROW.

Residual fuel oil deliveries for April are estimated to be 1,343 thousand B/D, representing an increase of 1.3 percent from the previous month but an increase of 6.8 percent from April 1987. This represents a continuing pattern of year-to-year increases that has characterized the heavy fuel oil markets since the beginning of the year. This apparently indicates that the reversal of last year's erosion of the heavy fuel market has become more than a short-term phenomenon. In fact, the month-to-month increase contrasts sharply with the normally large seasonal decline usually recorded for April, implying unusual strength in heavy fuel oil demand for the month.

Strong demand from the industrial sector, which is currently experiencing an export-led boom as well as continuing robustness in domestic demand, is reported to have been the main reason for the ongoing underlying strength in fuel oil deliveries. In addition, the fuel was believed to have benefited from its continuing competitive price advantage over natural gas in this sector despite recent declines in the spot price of gas. The increase in residual fuel prices towards the end of the month, however, was a belated response to the earlier firming of crude oil prices, and was therefore too small and too late to result in significant switching away from oil during the month. Utilities' demand for heavy fuel oil, however, which was reported to have been in line with seasonal expectations, is not believed to have accounted for any of the month's strength in the residual fuel oil market.

Kerosine Jet Fuel

APRIL DELIVERIES RISE, BUT WEAKLY.

Kerosine jet fuel deliveries rose 4.3 percent in April, but if adjustment is made for under-reporting of imported jet fuel removed from bonded storage last year, the increase would be about half that rate. For the year to date, deliveries adjusted for this increased over 5 percent, not far short of rates implied by the growth in air traffic.

Traffic indicators for the first quarter were up nearly 6 percent. Much of the increase was due to large gains in international travel, with domestic traffic up only about 3 percent over last year's first quarter. Air freight, however, was strong both for both domestic and international destinations, averaging more than 20 percent above a year ago.

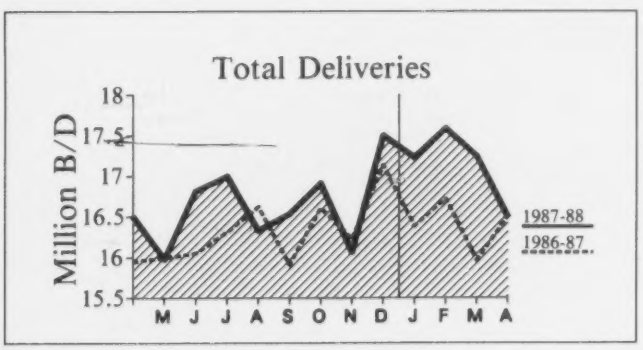
Other Oils

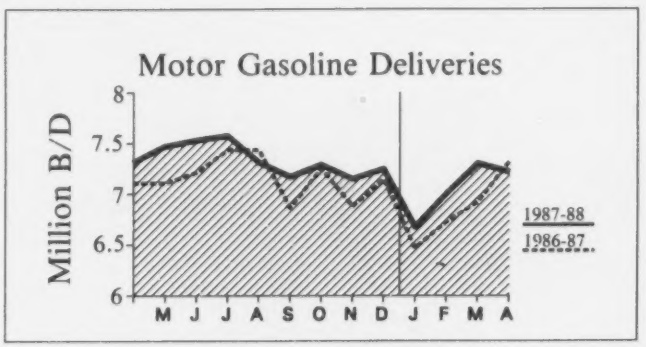
NEARLY FLAT FOR THE MONTH.

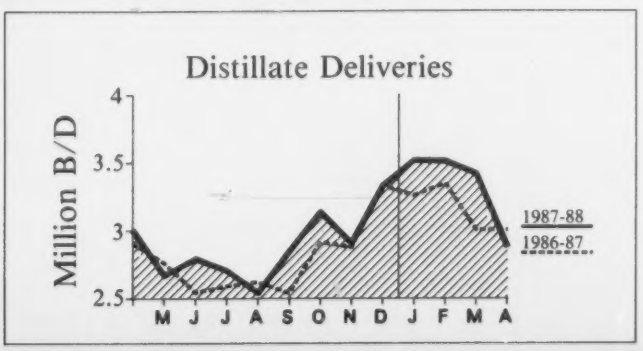
Deliveries of other oils for April were estimated to be 3,890 thousand B/D, down 5.5 percent from the previous month but up 0.3 percent from April 1987. The large monthly decline, almost twice that of the seasonal norm, resulted in the smallest year-to-year increase in almost two years.

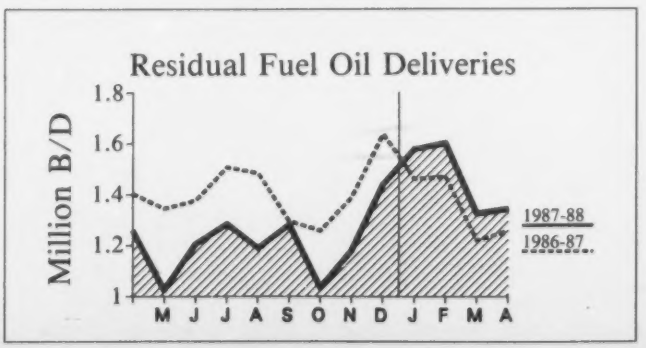
Several factors are believed to have accounted for the apparent slowdown in the growth of deliveries in this category. In the petrochemical markets, ethane and propane deliveries continued to be strong as a result of the continued buoyancy in both domestic and international markets for derivatives. Propane continues to be the preferred feedstock in the olefin market. But actual deliveries of both propane and ethane are believed to have been hampered by continued downtime in several large ethylene plants. In addition, deliveries of heavier feedstocks were reported to have stagnated somewhat as a result of declines in naphtha throughput. Gasoil deliveries were reported to have risen only slightly.

A slow start in the summer season of the asphalt and road oil markets is also believed to have contributed substantially to the weakness in deliveries of the other oils. Weather problems in several parts of the country are believed to have hampered asphalt and road oil deliveries, slowing both road-building and roofing activity.









SUPPLY [1/]

Production

CRUDE PRODUCTION, NGLs BOTH DOWN SO FAR THIS YEAR. April crude oil production declined 2.7 percent or over 220 thousand B/D from a year earlier; unlike recent previous months, there was no year-to-year increase in Alaskan production to partially offset the lower 48's continuing decline.

Natural gas liquids production has also shown year-to-year declines averaging about 1 percent so far this year, contrasting with the nearly 7 percent rise in last year's second half. The increase last year, however, mainly represented a return to earlier levels following depressed production in 1986. Lower production of NGLs then was a direct result of that year's substantial oil price decline, which had made petroleum-based petrochemical feedstocks more attractive relative to those derived from natural gas.

Imports

UP 22 PERCENT FROM LAST APRIL. Total imports moved up again in April after slipping slightly in March, exceeding 7 million B/D for the first time since last August. The year-to-year increase was nearly 22 percent or close to 1.3 million B/D, with a little more than half of the increase ending up in inventories. Current estimated consumption growth and production declines, however, still imply a substantial underlying growth rate for imports of roughly 10 percent per year.

Three fourths of April's rise in imports was in crude oil, though product imports also rose about 285 thousand B/D. A major part of the increase for products was due to higher imports of LPGs and unfinished oils, while imports of gasoline and components, distillates, and residual fuel oil all were within 15 thousand B/D of last April's levels.

Refinery Operations

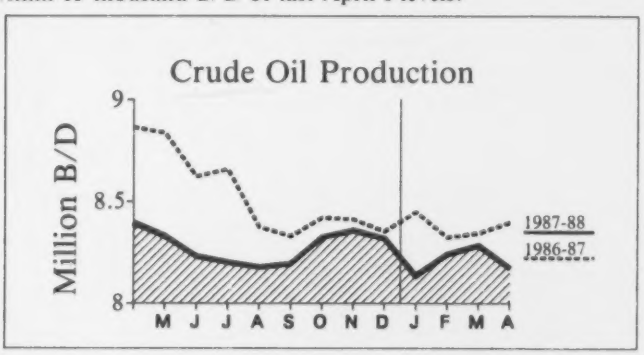
GASOLINE OUTPUT UP DESPITE EMPHASIS ON DISTILLATE. The seasonal shift in product slates towards gasoline and away from distillate has been slower so far this year than usual, in part a reflection of the strong deliveries of distillate in the past several months and gasoline inventories which were already at recent historical levels for this time of year. Toward the end of April, however, gasoline production was picking up relative to distillate.

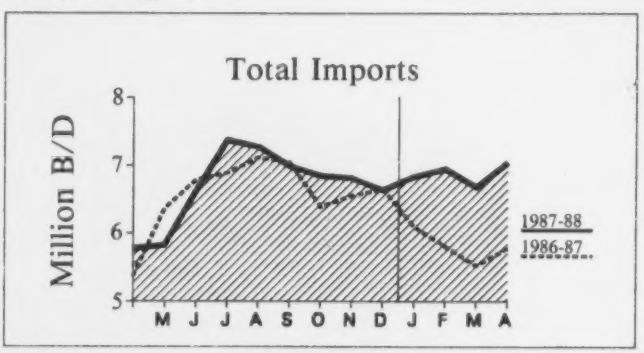
Even though gasoline yields for the month were less than usual for April, gasoline production still reached the highest April level in more than a decade because of the high level of refinery runs. Input to crude oil distillation units rose 6 percent over a year ago; gasoline production rose 0.6 percent, while distillate output increased more than 13 percent.

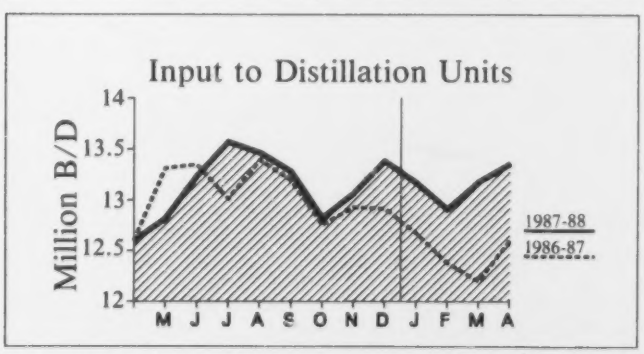
Refinery utilization was up 3 percentage points over last April, reaching 83.4 percent of operable capacity. If the roughly 1 million B/D of capacity classified as operable but idle were excluded, the utilization rate would rise to 89 percent, a few percentage points short of historical highs ranging in the low 90s.

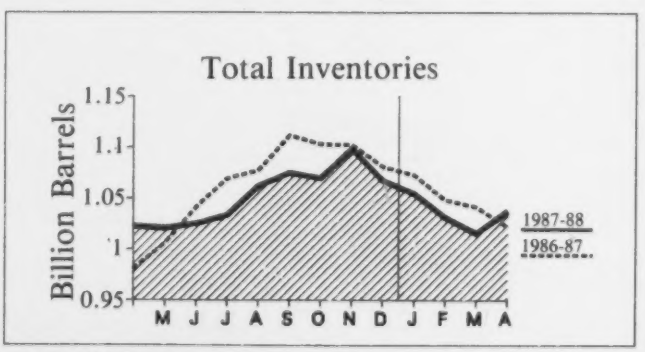
Inventories

TOTAL STOCKS RISE 22 MILLION BARRELS. Though on average, total inventories have historically shown little direction during the month, this April's inventories rose by 22 million barrels because of higher imports and below-trend deliveries. Crude oil stocks accounted for half of the increase. Gasoline stocks held nearly steady, while distillate inventories, in a contraseasonal move, rose slightly.









1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 547 million barrels as of April 30, 1988).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	APRIL			YEAR-TO-DATE		
	1988[1]	1987[2]	% Change	1988[3R]	1987[2]	% Change
Products Supplied:						
Total motor gasoline	7,219	7,317	(1.3)	7,055	6,858	2.9
Finished leaded motor gasoline*	1,442	1,915	(24.7)	1,413	1,779	(20.6)
Finished unleaded motor gasoline*	5,777	5,402	6.9	5,642	5,079	11.1
Naphtha-jet	235	196	19.9	213	193	10.4
Kerosine-jet	1,178	1,129	4.3	1,240	1,156	7.3
Distillate fuel oil	2,879	3,004	(4.2)	3,335	3,150	5.9
Residual fuel oil	1,343	1,257	6.8	1,462	1,350	8.3
All other oils[4]	3,890	3,877	0.3	4,104	3,942	4.1
Reclassified[5]	- 253	- 279	(9.3)	- 265	- 266	(0.4)
Total domestic products supplied	16,491	16,501	(0.1)	17,144	16,383	4.6
Exports	880	864	1.9	904	849	6.5
Total products supplied	17,371	17,365	-	18,048	17,232	4.7
Supply:						
Domestic production:						
Crude oil[6]	8,172	8,395	(2.7)	8,207	8,378	(2.0)
Natural gas liquids	1,581	1,600	(1.2)	1,587	1,605	(1.1)
Other supply[7]	1,298	960	35.2	1,134	953	19.0
Total domestic supply	11,051	10,955	0.9	10,928	10,936	(0.1)
Imports:						
Crude oil, total	5,037[10/]	4,058[10/]	24.1	4,728[10/]	3,964[10/]	19.3
Canadian	705	611	15.4	671	560	19.8
Other	4,332	3,447	25.7	4,057	3,404	19.2
Products, total	1,999	1,715	16.6	2,150	1,834	17.2
Residual fuel oil	547	541	1.1	661	593	11.5
Other	1,452	1,174	23.7	1,489	1,241	20.0
Total imports	7,036	5,773	21.9	6,878	5,798	18.6
Total supply	18,087	16,728	8.1	17,806	16,734	6.4
Stock change, all oils	+ 716	- 637	XXXX	- 242	- 498	XXXX
Refinery Operations						
Input to crude oil distillation units	13,357	12,598	6.0	13,157	12,462	5.6
Operable capacity	16,016	15,662	2.3	15,883	15,642	1.5
Refinery utilization (%)[8]	83.4%	80.4%	3.7	82.8%	79.7%	3.9
Crude oil runs	13,137	12,513	5.0	12,966	12,367	4.8

Stocks (millions bbls.)	1988		1987[2]	% Change from ...	
	Apr. 30[9]	Mar. 31[9]	Apr. 30	Previous Month	Year Ago
Crude oil [10/]	357.2	345.8r/	331.0	3.3	7.9
Unfinished oils	103.2	101.4	105.5	1.8	(2.2)
Total motor gasoline**	228.8	229.8r/	242.6	(0.4)	(5.7)
Finished leaded motor gasoline*	47.0	48.5	59.5	(3.1)	(21.0)
Finished unleaded motor gasoline*	145.7	144.3r/	142.0	1.0	2.6
Naphtha-jet	6.7	6.7	6.9	-	(2.9)
Kerosine-jet	38.2	38.9	40.1	(1.8)	(4.7)
Distillate fuel oil	94.4	91.3r/	100.4	3.4	(6.0)
Residual fuel oil	41.4	42.0r/	35.9	(1.4)	15.3
All other oils	167.1	159.6r/	158.9	4.7	5.2
Total all oils	1,037.0	1,015.5r/	1,021.3	2.1	1.5

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: January-February, U.S. Department of Energy, March-April, API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

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Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 12, No. 5

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MAY 1988

SUMMARY

May's small increase in deliveries, though greater than the previous month's essentially flat results, still amounted to only 0.8 percent over last May. The weak deliveries of the past two months contrast with the unusually strong performance of the first quarter, when deliveries had risen more than 5 percent year to year. Year to date, the strong first quarter and weaker April and May average out to an increase of a little more than 3 percent, close to the range of estimated underlying consumption growth on the order of 2.5 to 3 percent.

Gasoline deliveries were down for the second month in a row—though, unlike April's decline, May's decrease primarily represents strong deliveries a year ago rather than unusually weak deliveries this year. Kerosine jet fuel deliveries were also down from a year ago, despite continued, though perhaps smaller, increases in air traffic than earlier in the year. Against these declines were an over 4 percent rise for distillates and a relatively strong increase for residual fuel oil.

Imports rose over 18 percent or 1.1 million B/D above last May, continuing at over 7 million B/D for the second month in a row. Some of the increases in imports in recent months have gone to meet higher demand and compensate for lower domestic production, but the largest portion of May's increase went into inventories. In the past two months, stocks have risen about 40 million barrels more than usual for April and May and at month-end were 52 million barrels higher than for one year previously. Input to distillation units at refineries was up about 6 percent over last May, though gasoline production was down slightly.

It should be noted that the Department of Energy's revised data for 1987, recently released in the *Petroleum Supply Annual* and incorporated in this report's year-ago data this month, show that deliveries grew more rapidly last year than originally estimated. Growth in total deliveries in 1987 is now put at 2.4 percent, compared with the 1.7 percent previously estimated by DOE; deliveries of the individual major products were revised upwards by from 0.3 to 0.7 percent, with kerosine jet fuel adjusted upwards by 3 percent. Despite the revision in total deliveries for the year ago period, this year's first quarter growth still amounted to an unusually large 5 percent, at least twice as large as the revised year-to-year increases of the immediately preceding quarters.

PRODUCT SUPPLIED[1/]

Gasoline

MAY'S DECLINE DUE PARTLY TO STRENGTH A YEAR AGO.

In May, for the second month in a row, gasoline deliveries fell compared with a year ago. April's decline had been due to weak deliveries following strong growth of over 3 percent in the first quarter. May's 2.2 percent decline, however, was mostly the result of deliveries last May which were above trend by roughly 250 thousand B/D. Adjusted for this, deliveries this May would be up something more than 1 percent—but still less than consumption growth as indicated by the growth in travel. The first quarter's increase in miles traveled nearly matched the 3.8 percent rise of last year, when deliveries where growing at a more than 2 percent rate, and there is little reason to believe that more recent months' growth in travel differs markedly from that of the first quarter.

The increase in travel over the past several years has continued to show regional differences. Although, within regions, the rate of population growth has slowed in some parts of the South and picked up in the Northeast, comparison among regions shows that the southern and western parts U.S. have continued to grow more rapidly than the rest of the country. As a result, according to Department of Transportation data, the South and West account for roughly two thirds of the 1982-1987 increase in U.S. gasoline sales.

Distillates

AFTER APRIL'S DECREASE, MAY'S DELIVERIES REBOUND.

Distillate deliveries rebounded in May, rising 4.3 percent over deliveries of May last year. April's deliveries had fallen, year-to-year, following a sharp increase in the first quarter. Though the year-to-date increase amounts to over 5 percent, we believe that growth in consumption has been less than this. The main source of growth for this fuel continues to be the

API ESTIMATES

	MAY		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.1	0.8	17.0	3.3
Crude oil production[2/]	8.2	(1.7)	8.2	(2.7)
Total imports[3/]	7.1	18.2	6.9	16.3
Stocks (million bbl)[3/]	1,068	5.1	na	na

transportation sector. With truck traffic up an estimated 6 percent, based on the overall performance of the economy so far this year, and rail traffic up at least as much, transportation usage is estimated to have been adding 100 thousand B/D or so to consumption growth so far this year. Industrial usage may also be up somewhat, given the strength in industrial output, but most other sectors have little to contribute either way to the year to year change, indicating a growth rate for consumption of roughly 3 percent.

Residual Fuel Oil

DELIVERIES RISE NEARLY 12 PERCENT, YEAR TO YEAR.

Residual fuel oil deliveries for May are estimated to be 1,151 thousand B/D, representing a decline of 14.3 percent from the April level but an increase of 11.9 percent from those of May 1987. Despite the sharp month-to-month decline, the deliveries estimate for May indicates continuing high levels of demand propelled by energy-intensive industrial activity, confirming a pattern of year-to-year increases in the heavy fuel oil market since the beginning of the year. The decline from the previous month, which is substantially greater than the normal seasonal pattern, is the result of strong demand in the industrial sector during April rather than a sign of a slowdown in May. On the other hand, part of the large year-to-year increase can be attributed to the historically low deliveries estimate for May 1987.

As in the previous month, the industrial sector is believed to have been responsible for almost all of the strength in the heavy fuel oil market. In view of the lack of unusual weather conditions, the utility sector is believed to have had only a neutral effect on deliveries.

Kerosine Jet Fuel

TRAFFIC GROWS, BUT DELIVERIES DROP.

Air traffic indicators were already growing less rapidly in this year's first quarter than they were last year, up an estimated 6 percent versus an 8 percent increase in miles flown for all of 1987. So April's weaker showing, at less than 3 percent, suggests that May's increase in traffic may also have been smaller than those earlier in the year. Even so, consumption is likely continuing to grow—even though May's deliveries were not particularly strong. After increasing year-to-year in each month so far in 1988, deliveries were down 2.3 percent in May compared with a year ago.

The Department of Energy's revised data for 1987, including data on imported jet fuel that had earlier escaped collection, falls more into line with air traffic patterns than did the earlier estimate. Previous DOE data had shown a 3.6 percent increase in deliveries for last year, less than half the increase in miles flown, while the revised data show a nearly 7 percent increase in deliveries. Allowing for some improvement in fuel efficiency due to replacements and additions to the aircraft fleet, the correspondence with air traffic growth is greatly improved.

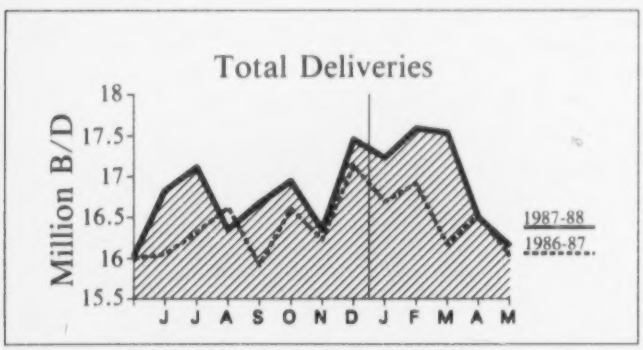
Other Oils

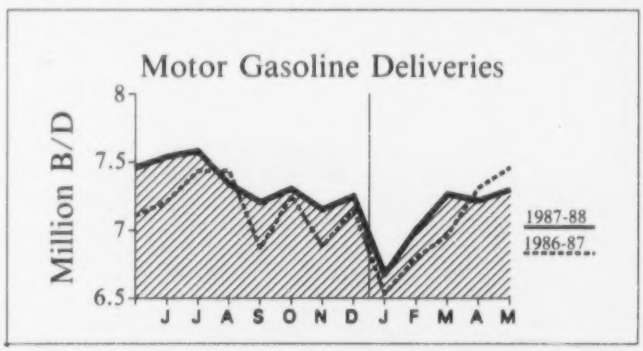
ONLY MODEST GROWTH FOR MAY.

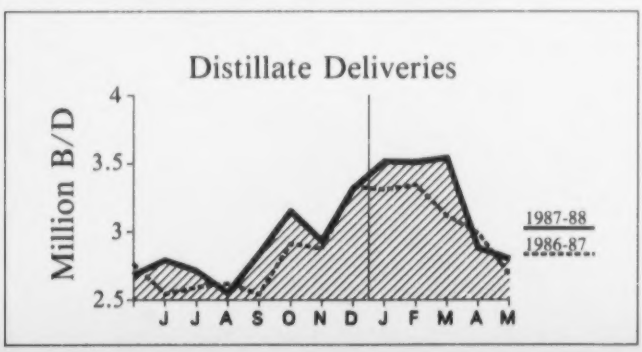
Deliveries of other oils for May were estimated to be 3,831 thousand B/D, representing only a 0.9 percent increase from last May and a decline of 1.5 percent from the previous month. The decrease contrasts with a normal seasonal increase of more than 5 percent.

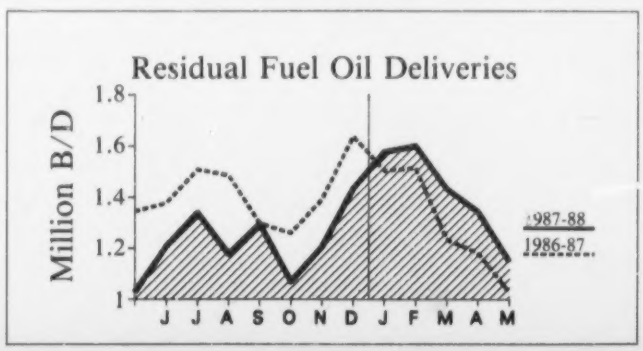
Part of the continued slowdown in year-to-year increases is believed to be the result of ongoing supply problems in the petrochemical markets. Despite maintenance and repairs at some olefin plants, most operating petrochemical plants were reported to have operated at close to capacity. This apparent tightness is believed to have contributed to a small but perceptible shift in feedstock preference. Pure ethane, the preferred feedstock, currently commands a premium; propane, which continues to be the cheapest ethylene feedstock, produces by-products whose demand has been declining.

Despite the good weather during most of the month, asphalt and road oil markets are reported to be substantially behind









last year's levels in many parts of the country. These products, which normally account for the substantial upswing in other oils' deliveries each May, may be the principal reason for this year's counterseasonal decline in May deliveries of other oils. East Coast asphalt activity is believed to have been especially slow, but Mid-Continent deliveries reportedly picked up during the latter part of the month after a slow start.

SUPPLY[1/]

Production

DECLINE CONTINUES. May's crude oil production fell 145 thousand B/D from one year earlier, a 182 thousand B/D decline in the lower 48's output being only partly offset by a 37 thousand B/D increase for Alaska.

Though the number of producing wells has declined by only about 4 percent since the oil price decline of 1986, production from many existing wells has dropped due to natural decline and less favorable economics for well servicing, maintenance, and enhanced recovery projects. Well servicing activity, in particular, though higher than some of the lows reached during the past two years, has been running nearly 30 percent below the levels of the first part of 1985. The net effect of this, combined with drilling rates at only half those as recent as three years ago, has been a decline in overall U.S. production of 1 million B/D in a little over two years.

Imports

AT OVER 7 MMBD, IMPORTS ARE UP OVER 18 PERCENT. Imports continued at over 7 million B/D in May for the second month in a row. Year to year, imports are up more than 18 percent—though with a 145 thousand B/D decline in production and only a 123 thousand B/D rise in deliveries for the month, much of the increase went into inventories.

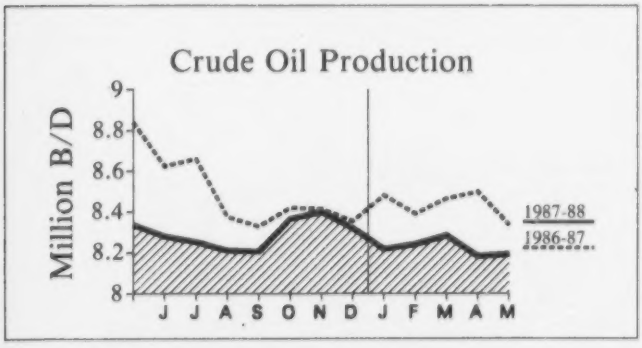
As in prior months, by far the largest part of the May increase was in crude oil, which rose over 900 thousand B/D to provide feedstock for refineries' increased runs and to compensate for declining U.S. production. Also as with prior months, most of the 180 thousand B/D increase in product imports was not in the major products; imports of gasoline and components, as well as distillates, were close to last May's level, while residual fuel oil imports declined slightly.

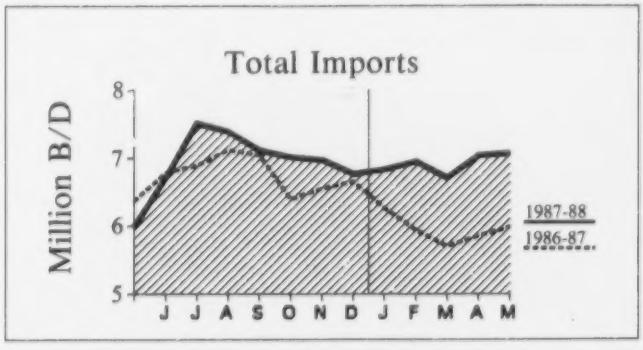
Refinery Operations

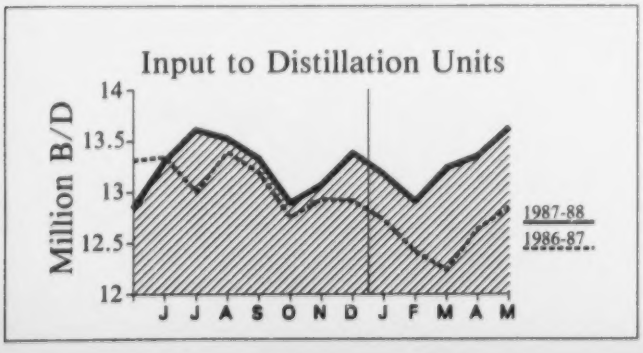
UTILIZATION OF OPERATING CAPACITY ABOVE 90 PERCENT. As has been the case so far this year, refinery input has continued to show gains versus the year ago period. For May, the increase was 6.1 percent over last May. Utilization of operable capacity rose 2.6 percentage points to over 85 percent.

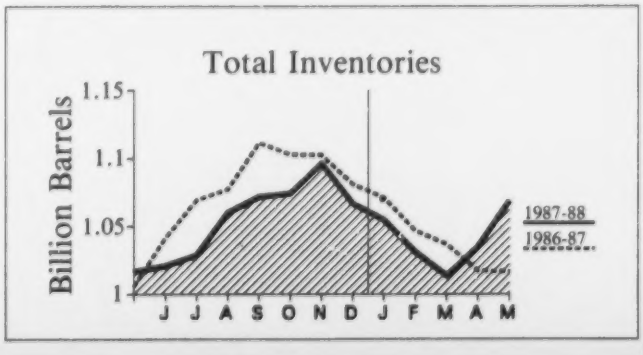
It should be noted that "operable capacity", by definition, includes distillation capacity which can be put into operation within 30 days, or, if under repairs, within 90 days; the capacity of downstream units for the production of gasoline or other products, whether in operation or undergoing repairs or maintenance, are not directly involved in the calculation except to the extent that they may constrain what can be run through the initial distillation step. Thus, after accounting for more than 1 million B/D of operable but idle capacity, utilization of capacity actually operating probably exceeded 90 percent in May; utilization of downstream units was likely at least as high, if not higher.

Gasoline production was down about 2 percent from last May, though distillate jumped nearly 14 percent and residual fuel oil, over 12 percent, as yields on these products rose from last May's lower-than-typical rates.









Inventories

STOCKS UP 40 MMB MORE THAN AVERAGE FOR APRIL AND MAY. Total stocks rose 34 million barrels in May to a level 52 million barrels higher than a year ago. In the past two months, inventories have risen 55 million barrels, contrasted with a recent historical average for April-May of about 15 million barrels. Crude oil stocks, at 362 million barrels, continued at levels near the high end of the range of the last several years. Gasoline inventories declined 5 million barrels, and were within the range of May inventories of recent years; distillate stocks rose, a not uncommon occurrence for May, by 7 million barrels.

1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 548 million barrels as of May 31, 1988).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	MAY			YEAR-TO-DATE		
	1988[1]	1987[2]	% Change	1988[3R]	1987[2]	% Change
Products Supplied:						
Total motor gasoline	7,299	7,460	(2.2)	7,094	7,016	1.1
Finished leaded motor gasoline*	1,394	1,891	(26.3)	1,395	1,803	(22.6)
Finished unleaded motor gasoline*	5,905	5,569	6.0	5,699	5,213	9.3
Naphtha-jet	213	189	12.7	211	191	10.5
Kerosine-jet	1,092	1,118	(2.3)	1,219	1,169	4.3
Distillate fuel oil	2,800	2,684	4.3	3,249	3,085	5.3
Residual fuel oil	1,151	1,029	11.9	1,420	1,289	10.2
All other oils[4]	3,831	3,798	0.9	4,038	3,917	3.1
Reclassified[5]	- 237	- 252	(6.0)	- 241	- 215	12.1
Total domestic products supplied	16,149	16,026	0.8	16,990	16,452	3.3
Exports	852	666	27.9	866	783	10.6
Total products supplied	17,001	16,692	1.9	17,856	17,235	3.6
Supply:						
Domestic production:						
Crude oil[6]	8,191	8,336	(1.7)	8,205	8,434	(2.7)
Natural gas liquids	1,603	1,585	1.1	1,595	1,594	0.1
Other supply[7]	1,225	769	59.3	1,149	833	37.9
Total domestic supply	11,019	10,690	3.1	10,949	10,861	0.8
Imports:						
Crude oil, total	5,154[10/]	4,248[10/]	21.3	4,833[10/]	4,028[10/]	20.0
Canadian	669	673	(0.6)	671	585	14.7
Other	4,485	3,575	25.5	4,162	3,443	20.9
Products, total	1,912	1,732	10.4	2,084	1,919	8.6
Residual fuel oil	488	505	(3.4)	633	581	9.0
Other	1,424	1,227	16.1	1,451	1,338	8.4
Total imports	7,066	5,980	18.2	6,917	5,947	16.3
Total supply	18,085	16,670	8.5	17,866	16,808	6.3
Stock change, all oils	+1,084	- 22	XXXX	+ 10	- 427	XXXX
Refinery Operations						
Input to crude oil distillation units	13,629	12,848	6.1	13,260	12,575	5.4
Operable capacity	16,016	15,565	2.9	15,944	15,561	2.5
Refinery utilization (%)[8]	85.1%	82.5%	3.2	83.2%	80.8%	3.0
Crude oil runs	13,423	12,653	6.1	13,069	12,423	5.2

Stocks (millions bbls.)	1988		1987[2]	% Change from ...	
	May 31[9]	Apr 30[9]	May 31	Previous Month	Year Ago
Crude oil[10/]	362.0	357.2	324.7	1.3	11.5
Unfinished oils	109.7	103.2	102.0	6.3	7.5
Total motor gasoline**	224.4	228.9r/	234.9	(2.0)	(4.5)
Finished leaded motor gasoline*	45.0	47.0	57.6	(4.3)	(21.9)
Finished unleaded motor gasoline*	143.4	145.7	138.4	(1.6)	3.6
Naphtha-jet	6.5	6.7	8.1	(3.0)	(19.8)
Kerosine-jet	38.3	38.2	39.3	0.3	(2.5)
Distillate fuel oil	101.4	94.4	101.3	7.4	0.1
Residual fuel oil	42.9	41.3	40.4	3.9	6.2
All other oils	183.2	164.9r/	165.9	11.1	10.4
Total all oils	1,068.4	1,034.8r/	1,016.6	3.2	5.1

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: January-March, U.S. Department of Energy, April-May, API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

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Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 12, No. 6

JULY 13, 1988

JUNE 1988

SUMMARY

In 1988's first half, deliveries continued to rise, domestic production continued to fall, and imports continued to grow— trends which, with some variations, have persisted since the major oil price decline of 1986.

First half deliveries rose 2.5 percent, slightly more than 1987's 2.4 percent rise. This was mainly the result of residual fuel oil's seesawing demand over the past several years. Residual fuel oil deliveries jumped ahead in 1986 with lower oil prices, fell back last year as oil prices rose and natural gas prices slipped, and increased again in this year's first half by almost 7 percent.

Growth in deliveries of all products other than residual fuel oil, however, slowed to 2.1 percent in the first half from 1987's annual 3.6 percent increase. One factor contributing to this was slower growth in gasoline deliveries, though, in light of other consumption indicators, it is not clear that underlying growth in gasoline consumption has actually slackened.

For other products, increases in transportation use continued to be the principal source of growth for distillates, while less rapid growth in air traffic helped to slow kerosine jet fuel's rate of increase compared with that of 1987. Growth in the deliveries of "other oils" also slowed, rising 1.0 percent in the first half compared with 4.3 percent for all of last year.

With crude oil prices averaging more than 10 percent lower than for last year's first six months, first half crude oil production outside Alaska has fallen 870 thousand B/D since the same period two years ago—the most rapid two-year decline ever. Gains in Alaskan production, stemming from the coming on stream of the offshore Endicott field late last year and from other projects begun years earlier and completed in the past two years, have provided a partial offset to the lower 48's decline. However, despite the almost 150 thousand B/D increase in Alaskan production over the past two years, the decline in U.S. production as a whole has still amounted to 728 thousand B/D.

Imports jumped over 14 percent in this year's first half, more than twice the rate of increase in 1987. Though a significant portion of this year's rise represents a shift in inventory patterns, growing demand and falling domestic production have kept the underlying trend in imports heading upwards. If adjusted for inventory movements, imports in the first half of 1988 would be roughly 1.8 million B/D higher than for the same period three years ago; the actual increase was well over 2 million B/D.

Growing demand and improved refinery margins helped refinery utilization to reach an average 83.8 percent of operable capacity in the first half, the highest January-to-June rate in nearly a decade. A significant portion of the high level of imports went towards increasing inventories during the first half by 10 million barrels—in contrast with an average historical decline of about 40 million B/D.

PRODUCT SUPPLIED [1]

Gasoline

SLOWDOWN IN FIRST-HALF GROWTH. The rate of growth in gasoline deliveries in this year's first half slowed to 1.6 percent from 2.4 percent for all of last year, a somewhat puzzling development in light of other indicators which suggest little if any slowdown in consumption.

Although difficult to believe, it may well be that the boost in demand expected from a price drop such as that which occurred in 1986 may by now have played itself out— and retail prices, though experiencing some variability as a result of fluctuating crude oil prices, have averaged roughly the same as a year ago for much of the past six months. But more rapid growth in income this year can also be expected to have had a positive effect on demand growth. Real disposable income, which had risen 1.2 percent in 1987, has been rising at about a 2.8 percent year-to-year rate so far in 1988.

API ESTIMATES

	JUNE		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.7	(1.0)	16.9	2.5
Crude oil production[2]	8.2	(0.9)	8.2	(2.3)
Total imports[3]	7.0	4.6	6.9	14.1
Stocks (million bbl)[3]	1,078	3/	na	na

If the net result of these factors were a slackening in the rate of growth of gasoline consumption, it is not borne out by the evidence from vehicle travel. Available data on miles traveled so far this year show a 3.6 percent increase, only slightly less than last year's annual 3.8 percent increase. However, it may be that the increase in gasoline demand that resulted from higher speed limits in the latter part of 1987 and early 1988 is no longer affecting the rate of growth. Thus, it is not clear at this point that the slowdown in deliveries for the first half really represents a slowdown in consumption. June's deliveries, however, rose 1.6 percent from last year, indicating that much of the earlier drawdown of secondary and tertiary stocks that may have occurred, ended when primary stocks dropped substantially in mid-month.

Unleaded's market share surpassed 80 percent for the first time during the first half of 1988, marking off more than a decade during which the shares of leaded and unleaded were reversed. With help from midgrade unleaded, which has replaced leaded regular for some marketers in some areas, unleaded's share rose another 6 percentage points in the first half, year to year, after a strong, 7 percentage point gain in 1987, and by June had reached 81.5 percent.

Distillates

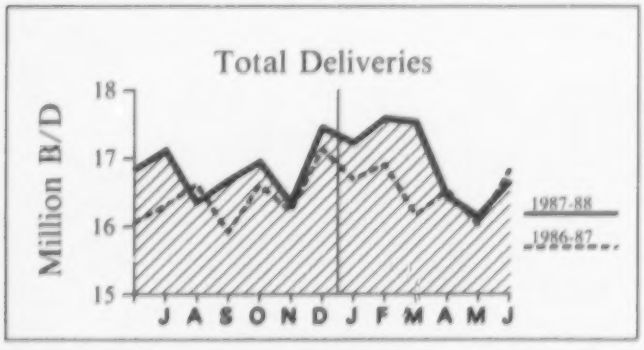
TRANSPORTATION LEADS STRONG FIRST HALF. Transportation continued to be the main growth sector for distillate fuel oil in the first half of 1988, accounting for perhaps 75 thousand B/D of the 123 thousand B/D (4.1 percent) increase over the same period last year. Demand for truck transportation has risen in response to the economy's relative strength in the first half, and traffic has increased an estimated 6 percent so far this year. Rail traffic is up over 8 percent, with notable increases for coal and for export-related shipments of grain.

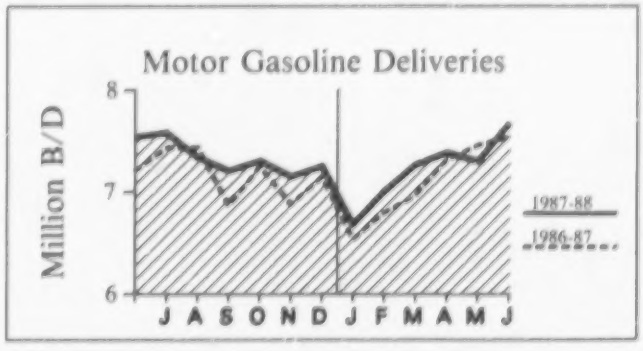
Residential and commercial demand is also estimated to have been slightly higher so far this year than in the first half of 1987, but due mainly to colder weather during the main part of the heating season rather than to any significant change in its share in the market for heating fuels. With a small increase in the industrial sector and little change for farm, off-highway, or other uses, it appears that underlying growth in consumption, excluding temporary weather effects, has been on the order of 3 to 3.5 percent.

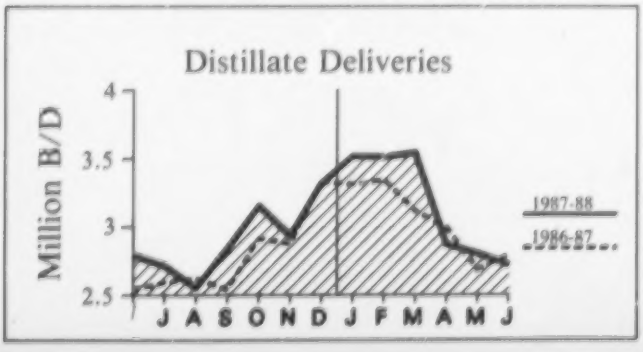
Residual Fuel Oil

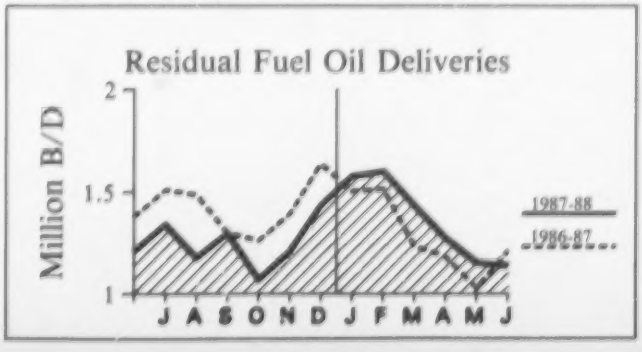
STRONG FIRST-HALF DELIVERIES. Residual fuel oil deliveries during the first half of the year are estimated to be 1,364 thousand B/D, up 6.9 percent from the first half of 1987. Heavy fuel oil benefited from both low prices and the continuing expansion of export-led sectors of the economy. However, the 5.8 percent decline in the June estimate from last year points to a possible reversal of the year-to-year increases that have characterized heavy fuel oil deliveries since the beginning of the year.

The industrial sector is believed to have been responsible for much of the year-to-year semi-annual increase in residual fuel oil deliveries. The June estimates, however, suggest that interruptible spot natural gas supplies are capturing larger parts of the large-industrial user market. Despite depressed gas prices during much of the last six months, heavy fuel oil was also able to have retained much of its market share of the electric utility market because of the fuel's relative competitiveness. More recent signs, however, point to a small but growing displacement of small quantities of residual fuel oil by natural gas in this sector as well. Both the increase in the availability of spot gas and the continuing decline in its price have apparently begun to invite fuel-switching to gas by some electric utilities, accounting for part of the year-to-year decline in the June deliveries estimate.









Bunker fuel deliveries during the first six months are believed to have increased substantially over 1987. The drought, however, is also reported to have diverted bunker fuel shipments from the Midwest to the Gulf as well as contribute to the apparent decline in the heavy fuel oil market. West coast bunker fuel deliveries have also reportedly been under recent pressure from more competitive Far East sources.

Kerosine Jet Fuel

SLOWDOWN IN FIRST-HALF INCREASE.

Shifts in the pattern of air traffic, particularly slower growth for passenger travel, are at least partly responsible for reducing kerosine jet fuel deliveries' year-to-date growth rate to half that of 1987. For the first six months of this year, kerosine jet fuel deliveries rose 4.1 percent, compared with nearly 7 percent for all of last year.

Much of this year's increase in traffic has been in the international passenger and air cargo sectors, both continuing the strong growth of 1987. Revenue passenger miles on international flights are up roughly 20 percent for the year to date, and cargo ton miles about 15 percent. Growth in domestic passenger miles, however, which accounts for the bulk of air traffic, has been flat so far in 1988, following a 7 percent rise last year. The net result of these traffic patterns has been an estimated increase in miles flown of about 5 percent, down from last year's 8 percent and 1986's 12 percent.

Other Oils

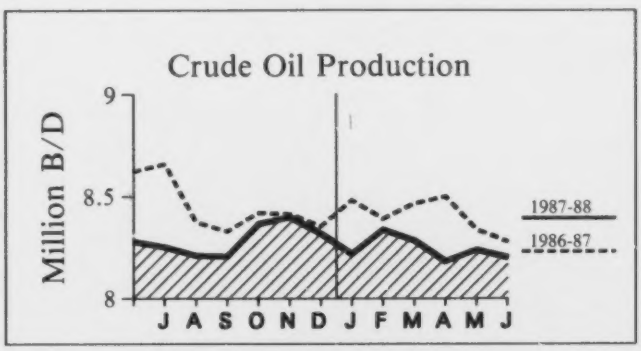
SLIGHT FIRST-HALF INCREASE.

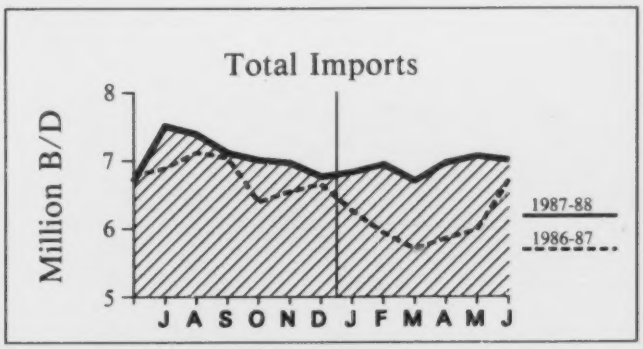
For the first half of 1988, deliveries of other oils were estimated to be 3,994 thousand B/D, representing an increase of 1.0 percent over the same period in 1987. Much of the year-to-year increase took place during the first quarter. But the second quarter decline, estimated to be 2.7 percent, was more the result of unusually high export-led petrochemical demand in the second quarter of 1987 than any current weakness in demand. In fact, olefin plants have been running close to capacity for the entire first half of this year.

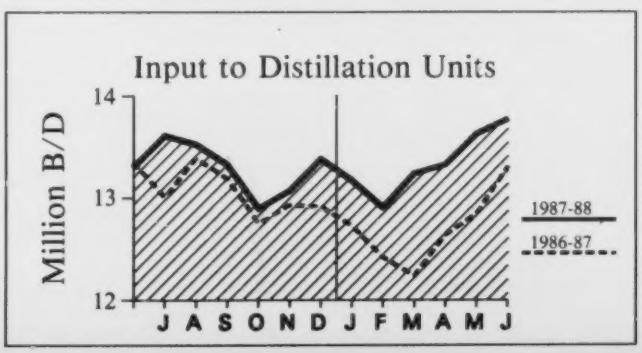
First-half increases were recorded in most of the individual products in the other oils category. Areas of particular strength have been liquid petroleum gases and still gas. LPG's were estimated to have grown by over 4 percent. During the period, there has been a significant shift from propane to ethane as the preferred ethylene feedstock, with purity ethane commanding a premium. During June, however, propane demand for crop-drying purposes has also been hampered by a decline in agricultural yields as a result of the drought. In the last few months, naphtha and gasoil have become more competitive with propane as petrochemical plants have approached full capacity.

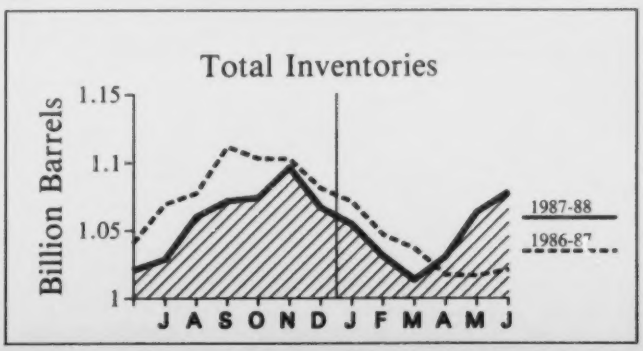
The robust year-to-year increase in still gas production and consumption, which is estimated to be over 8 percent, is consistent with the substantial increases in refinery runs during the same period. This pattern of year-to-year increases in refinery gas is believed to be the largest source of first-half growth in this category.

Asphalt and road oil were the exceptions to this pattern: they are estimated to have declined by approximately 8 percent over the first half of 1987. Unusually cold and wet weather in several parts of the country are reported to have depressed deliveries during the first quarter. The current drought, which has been affecting barge traffic in the Midwest, is believed to have hampered asphalt and road oil deliveries from the Gulf to the upper part of the Midwest.









SUPPLY [1/]

Production

CONTINUED DECLINE IN FIRST HALF. With crude oil prices averaging more than 10 percent lower than a year ago—and more than 40 percent lower than before the 1986 price drop--domestic crude oil production continued to decline in the first half of 1988. In the lower 48, where production before 1986 had been stable or even rising slightly, first half 1988 production declined 261 thousand B/D from 1987. From two years ago the decline has amounted to 870 thousand B/D. This was the largest drop for any two-year period. Partially mitigating this decline has been a slow but steady increase in Alaskan production as a result of projects initiated many years ago coming onstream in the past two years, such as the offshore Endicott field which began producing late last year. Since the first half of 1986, Alaskan production has risen by almost 150 thousand B/D, holding the decline for the U.S. as a whole to 728 thousand B/D in this year's first half versus two years earlier.

Compared with a year ago, lower 48 production was down 133 thousand B/D or 2.1 percent for June. Production in Alaska was roughly 55 thousand B/D higher, yielding a net decline for the U.S. as a whole of 78 thousand B/D or 0.9 percent.

Imports

STRONG FIRST-HALF INCREASE. First half imports rose almost 900 thousand B/D or 14 percent from a year ago, nearly twice as large as last year's annual increase. However, roughly half of this year's increase reflects differences in inventory behavior between the two periods, particularly a stock change this year 50 million barrels greater than the historical average. If adjusted for inventory changes, imports would still be about half a million B/D higher than for the same period a year ago—or more than 1.8 million B/D above those of three years ago, before the 1986 price decline that encouraged consumption while discouraging domestic production. The actual increase in imports since the first half of 1985 has been even larger—well over 2 million B/D. Roughly 40 percent of the increased need for imports over the past three years was the result of declining domestic production, while the remainder was mainly due to growth in deliveries.

First half crude oil imports alone increased almost 750 thousand B/D, while product imports rose over 100 thousand B/D. Higher deliveries of residual fuel oil helped to increase imports of that product by about 17 thousand B/D; LPG imports also rose close to 50 thousand B/D, up from lower-than-typical levels last year. Imports of gasoline and components declined slightly while imports of distillate, due to strength during the heating season, were slightly higher.

Refinery Operations

UTILIZATION REACHES NINE-YEAR HIGH. In the past three years, refinery input has risen more than 1 million B/D, in step with the increase in deliveries. This year's continued growth in deliveries helped to bring refinery utilization up to an average 83.8 percent of operable capacity in the first half of 1988—the highest rate for a similar period since 1979. Excluding idle capacity classified as "operable", year-to-date utilization of capacity in current operation averaged about 90 percent, a recent-year record for the first half of the year. Though high by recent historical standards, this still falls slightly short of a similarly calculated historical high of about 92 percent for the same period in 1977.

As with the first six months as a whole, June's refinery activity was strong, with input to distillation units up by 3.5 percent compared with last June. While in recent months, year-to-year gains in distillate output had been greater than that for gasoline, in June this patter was reversed.

Inventories

CONTINUED RISE IN TOTAL STOCKS. Continued high import levels helped to raise inventories another 15 million barrels in June. Though June's increase put the rise in stocks for the first half of 1988 at only about 10 million barrels, this contrasts sharply with an average decline of 40 million barrels during the same period in recent years. Crude oil inventories remained near the top of their 315-365 million barrel range of the past several years.

For June, gasoline stocks declined by 15 million barrels while distillate stocks rose 10 million barrels. The role of seasonal inventories in meeting gasoline demand during the summer peak period has typically been a small one. In fact, June-through-August deliveries have averaged only about 4 percent higher than the annual average in recent years. Thus, it is not surprising that during three of the past five summers, gasoline inventories have actually risen slightly during the period.

1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 550 million barrels as of June 30, 1988).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	JUNE			YEAR-TO-DATE		
	1988[1]	1987[2]	% Change	1988[3R]	1987[2]	% Change
Products Supplied:						
Total motor gasoline	7,661	7,539	1.6	7,214	7,103	1.6
Finished leaded motor gasoline*	1,417	1,861	(23.9)	1,397	1,813	(22.9)
Finished unleaded motor gasoline*	6,244	5,678	10.0	5,817	5,290	10.0
Naphtha-jet	203	233	(12.9)	207	198	4.5
Kerosine-jet	1,175	1,127	4.3	1,210	1,162	4.1
Distillate fuel oil	2,719	2,790	(2.5)	3,159	3,036	4.1
Residual fuel oil	1,137	1,207	(5.8)	1,364	1,276	6.9
All other oils[4]	3,955	4,141	(4.5)	3,994	3,954	1.0
Reclassified[5]	- 196	- 207	(5.3)	- 219	- 214	2.3
Total domestic products supplied	16,654	16,830	(1.0)	16,929	16,515	2.5
Exports	760	669	13.6	815	764	6.7
Total products supplied	17,414	17,499	(0.5)	17,744	17,279	2.7
Supply:						
Domestic production:						
Crude oil[6]	8,201	8,279	(0.9)	8,212	8,408	(2.3)
Natural gas liquids	1,600	1,578	1.4	1,601	1,592	0.6
Other supply[7]	1,087	1,076	1.0	1,061	873	21.5
Total domestic supply	10,888	10,933	(0.4)	10,874	10,873	-
Imports:						
Crude oil, total	5,140[10/]	4,743[10/]	8.4	4,893[10/]	4,147[10/]	18.0
Canadian	720	680	5.9	678	601	12.8
Other	4,420	4,063	8.8	4,215	3,546	18.9
Products, total	1,874	1,962	(4.5)	2,038	1,927	5.8
Residual fuel oil	393	481	(18.3)	581	564	3.0
Other	1,481	1,481	-	1,457	1,363	6.9
Total imports	7,014	6,705	4.6	6,931	6,074	14.1
Total supply	17,902	17,638	1.5	17,805	16,947	5.1
Stock change, all oils	+ 488	+ 139	XXXX	+ 61	- 332	XXXX
Refinery Operations						
Input to crude oil distillation units	13,774	13,306	3.5	13,346	12,697	5.1
Operable capacity	16,016	15,588	2.7	15,930	15,565	2.3
Refinery utilization (%)[8]	86.0%	85.4%	0.7	83.8%	81.6%	2.7
Crude oil runs	13,563	13,202	2.7	13,156	12,552	4.8

Stocks (millions bbls.)	1988		1987[2]	% Change from ...	
	June 30[9]	May 31[9]	June 30	Previous Month	Year Ago
Crude oil 10/	358.8	361.3r/	327.6	(0.7)	9.5
Unfinished oils	111.6	109.8r/	102.4	1.6	9.0
Total motor gasoline**	209.7	224.3r/	230.4	(6.5)	(9.0)
Finished leaded motor gasoline*	42.7	45.0	55.6	(5.1)	(23.2)
Finished unleaded motor gasoline*	132.1	143.4	136.9	(7.9)	(3.5)
Naphtha-jet	6.7	6.5	7.3	3.1	(8.2)
Kerosine-jet	38.8	38.3	38.7	1.3	0.3
Distillate fuel oil	111.3	101.6r/	104.4	9.5	6.6
Residual fuel oil	41.1	42.5r/	41.4	(3.3)	(0.7)
All other oils	199.8	178.8r/	168.6	11.7	18.5
Total all oils	1,077.8	1,063.1r/	1,020.8	1.4	5.6

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: January-April, U.S. Department of Energy, May-June, API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	2nd QUARTER		
	1988[1]	1987[2]	% Change
Products Supplied:			
Total motor gasoline	7,446	7,438	0.1
Finished leaded motor gasoline*	1,416	1,887	(25.0)
Finished unleaded motor gasoline*	6,030	5,551	8.6
Naphtha-jet	212	207	2.4
Kerosine-jet	1,144	1,130	1.2
Distillate fuel oil	2,795	2,820	(0.9)
Residual fuel oil	1,191	1,138	4.7
All other oils[3]	3,828	3,935	(2.7)
Reclassified[4]	- 200	- 212	(5.7)
Total domestic products supplied	16,416	16,456	(0.2)
Exports	764	734	4.1
Total products supplied	17,180	17,190	(0.1)
Supply:			
Domestic production:			
Crude oil[5]	8,207	8,371	(2.0)
Natural gas liquids	1,604	1,584	1.3
Other supply[6]	1,042	882	18.1
Total domestic supply	10,853	10,837	0.1
Imports:			
Crude oil, total	5,132 9/	4,351 9/	17.9
Canadian	697	656	6.3
Other	4,435	3,698	19.9
Products, total	1,905	1,824	4.4
Residual fuel oil	451	487	(7.4)
Other	1,454	1,337	8.8
Total imports	7,037	6,178	13.9
Total supply	17,890	17,015	5.1
Stock change, all oils	+ 710	- 175	XXXX
Refinery Operations			
Input to crude oil distillation units	13,580	12,929	5.0
Operable capacity	15,965	15,573	2.5
Refinery utilization (%)[7]	85.1%	83.0%	2.5
Crude oil runs	13,387	12,787	4.7

Stocks (millions bbls.)	2nd QUARTER		
	1988[8]	1987[2]	% Change
Crude oil 9/	358.8	327.6	9.5
Unfinished oils	111.6	102.4	9.0
Total motor gasoline**	209.7	230.4	(9.0)
Finished leaded motor gasoline*	42.7	55.6	(23.2)
Finished unleaded motor gasoline*	132.1	136.9	(3.5)
Naphtha-jet	6.7	7.3	(8.2)
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All other oils	199.8	168.6	18.5
Total all oils	1,077.8	1,020.8	5.6

1/ Source: U.S. Department of Energy, April; May-June, API.
2/ Source: U.S. Department of Energy.
3/ Includes crude losses.
4/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
5/ Includes lease condensate.
6/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
7/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
8/ Derived by interpolating API weekly stocks data.
9/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

8/17/88

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American Petroleum Institute
1220 L Street, Northwest
Washington, D.C. 20005

Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 12, No. 7

AUGUST 17, 1988

JULY 1988

SUMMARY

Following the second quarter's flat performance, July's deliveries declined 2.3 percent or 390 thousand B/D from a year ago. The bulk of the decline was accounted for by decreases in residual fuel and "other oils", both of which have been weakening in recent months. Even with slowing deliveries for these products, July's year-to-year decline would have been only slight had not last July deliveries, particularly in the fuel oils and "other oils" segments, been roughly 300 thousand B/D above that year's trend.

Deliveries of both gasoline and kerosine jet fuel where flat or down slightly for July as a whole, though both were gaining strength as the month progressed. Distillate fuel oil deliveries revived from the second quarter's weakness, with the 2.2 percent rise being the only significant increase among the major products. Residual fuel oil deliveries' decline exceeded those of recent previous months, falling 15 percent last July's level; deliveries of "other oils" declined about 5 percent.

Domestic crude oil production fell 1.2 percent, or close to 100 thousand B/D, from last July. Though domestic crude oil production has fallen by 1 million B/D since early 1986, natural gas liquids production—about 10 percent of petroleum supplies—has averaged 1.6 million B/D so far this year, about the same as before the 1986 crude oil price drop.

Imports reached 7.3 million B/D in July, the highest level in almost a year and close to last July's recent-year high. Imports of gasoline and components rose to a record of nearly 600 thousand B/D, and a shift in emphasis at refineries towards greater gasoline yields, coupled with high utilization rates, resulted in July output of this product exceeding 7 million B/D—the highest for that month in a decade.

Inventories rose 14 million barrels during the month, close to the historical average for July and a slowdown from the 65 million barrel build experienced during the second quarter. Crude oil stocks, in particular, reflected the apparent reduced interest in building inventories; after several months at nearly the 360 million barrel mark, crude oil inventories slipped 12 million barrels—but remained well above year-ago levels. Gasoline inventories, though lower than in recent years, remained steady throughout the month.

PRODUCT SUPPLIED[1]

Gasoline

DELIVERIES DOWN SLIGHTLY IN JULY. Despite continued growth in both the economy and in highway travel, July's limp gasoline deliveries, down slightly from a year ago, continued the no-growth pattern of the second quarter.

However, deliveries consistently strengthened as the month progressed, indicating fairly healthy deliveries by month-end. Though such short-term data are often not a reliable indicator of longer term trends, they do suggest that at least part of the month's weakness was only temporary.

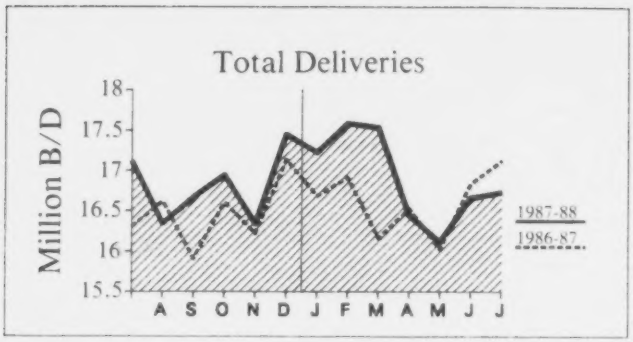
Economic growth, one factor with a strong influence on gasoline consumption, did slow slightly in the second quarter when compared with the previous quarter's rate (the most frequently cited comparison). Nevertheless, on a year-to-year basis, second quarter GNP showed a healthy, 4.3 percent rise compared with one year earlier—a factor which, other things equal, should have led to increased gasoline consumption of a percent or two, after allowing for fuel efficiency gains.

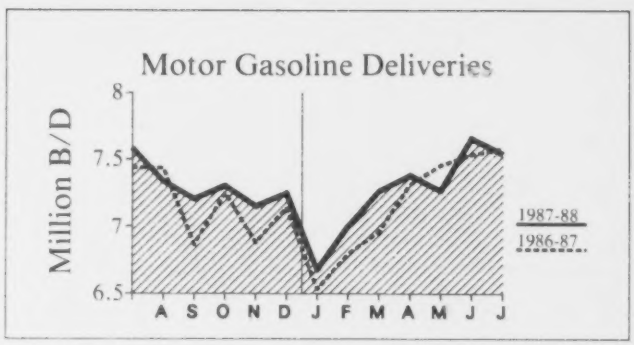
Data on miles traveled, now becoming available for the second quarter, also do not correspond with the flat performance of gasoline deliveries during that period. Travel rose 3.3 percent, year to year, in April and 3.8 percent in May—indicating little slowdown from last year's rate of increase in travel.

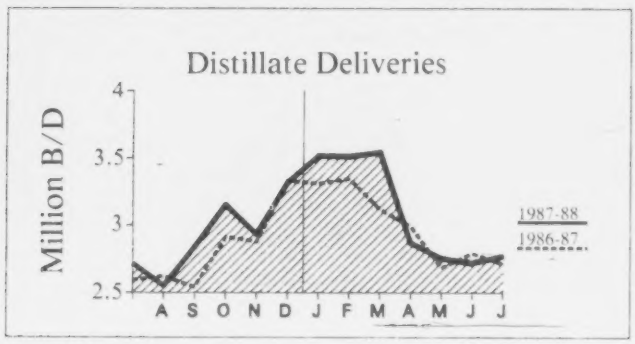
July's year-to-year comparison, in fact, may not have been as weak as it appears, if account is made of greater-than-usual "day-of-week" effects. Specifically, the analysis of historical monthly deliveries data indicates that the fact that this July contained five weekends (when gasoline deliveries, though not necessarily consumption, tend to be lower), while last July contained four, may have depressed deliveries this July by roughly 2 percent compared with the same month a year ago.

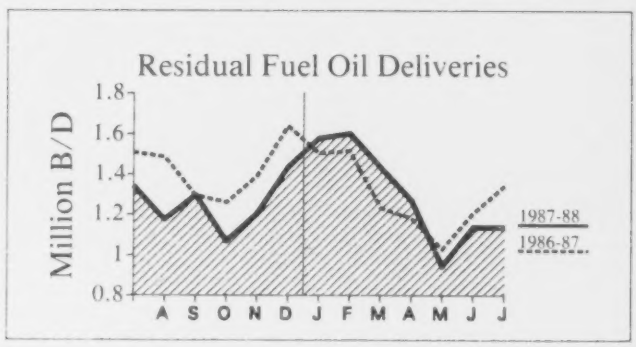
API ESTIMATES

	JULY		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.7	(2.3)	16.9	1.7
Crude oil production[2]	8.2	(1.2)	8.2	(2.2)
Total imports[3]	7.3	(2.8)	7.0	11.3
Stocks (million bbl)[3]	1,093	6.3	na	na









Distillates

UP 2.2 PERCENT FOLLOWING SLOW SECOND QUARTER. Distillate fuel oil was the only major product to show a significant increase in deliveries for July, rising 2.2 percent or 60 thousand B/D from last July's level, a level which already had been an estimated 80 thousand B/D above trend for that period.

July's increase added another zig to distillates' zig-zag behavior this year—deliveries had been up more than 8 percent in the first quarter and down slightly in the second, partly in response to changes in diesel tax collection procedures that took effect April 1. Now under consideration in Congress and tentatively effective in October are revised rules to partially reverse the previous changes, reducing tax payments due up front and later refunded for tax-exempt users.

The current strength in economic output continues to push truck traffic higher. Combined with smaller gains from the growth in rail traffic, the increasing use of on-highway diesel fuel accounts for most of this year's growth in distillate fuel oil deliveries, which, year to date, has averaged 3.6 percent. Diesel fuel consumption, in fact, has consistently grown faster than gasoline in recent years. Though highway diesel use represents only about 15 percent of all highway fuel consumption, over the past five years it has accounted for more than a quarter of the growth in on-highway fuel use.

Residual Fuel Oil

DECLINES IN DELIVERIES CONTINUE. Deliveries of residual fuel oil in July are estimated to be 1,138 thousand B/D, representing a decrease of 15 percent from July 1987. Although last year's estimate was unusually high during a period of volatility in month-to-month deliveries, the current estimate's low level continues a pattern of apparent weakness seen during the past two months. Despite the substantial year-to-year decline, July deliveries were virtually unchanged from June.

The apparent high demand for heavy fuel oil by electric utilities is believed to have helped July deliveries maintain levels of the previous month. Continuing warm weather has reportedly stimulated deliveries in the East. Ample, competitive supplies of natural gas, however, are believed to have limited the extent to which the weather has stimulated heavy fuel oil demand, preventing more significant increases of deliveries in this sector. In addition, inroads by natural gas are reported to have continued to displace fuel oil to industrial customers.

Depressed deliveries for bunker fuel are also believed to have contributed to the continuing underlying weakness in residual fuel oil deliveries. Several refiners, especially in the Gulf, have reportedly experienced reduced deliveries but reportedly began to move modest amounts by the end of the month. West Coast markets are somewhat more robust, but increased export markets for bunker cargoes from the West Coast to the Pacific Rim have reportedly contributed to the reduction in the availability of domestic supplies, contributing to the overall weakness in residual fuel oil deliveries.

Kerosine Jet Fuel

AIR TRAFFIC GROWTH SLOWING THIS YEAR. After five years of strong growth, air traffic increases have been diminishing this year, and the results have been apparent in kerosine jet fuel deliveries. Even so, July's deliveries, being about equal with a year ago, appear weaker than the growth in air traffic would suggest.

From 1982 to 1987, revenue passenger miles grew an average of 9 percent per year, accompanied by a similar annual rise in miles flown. Even with improving fuel efficiency resulting

from newer aircraft joining the fleet, the average growth in kerosine jet fuel consumption exceeded 7 percent per year—or a nearly 50 percent increase in usage over the five-year period. In 1988, year-to-year increases in miles flown had slipped to an estimated 3 percent by the second quarter, with July's increase likely similar. Jet fuel growth has fallen correspondingly. The modest remaining increase in traffic this year has not come from domestic passenger traffic, which has been nearly flat; most of the gains have come from increases in international travel and air freight service.

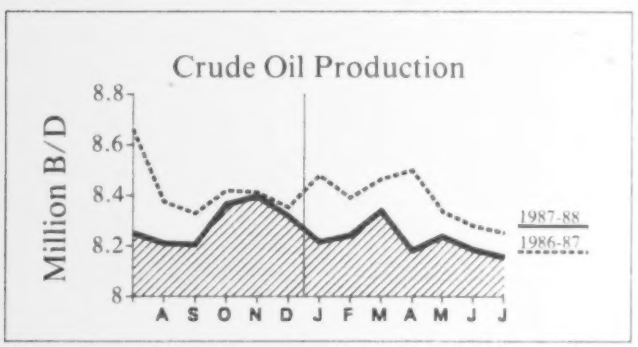
Though July's kerosine jet fuel deliveries may be somewhat out of step with indicators of air traffic, the coupling between patterns of air traffic and of jet fuel deliveries is a loose one. For example, though July and August are typically the peak traffic periods for the air transport industry, no such summer peak is apparent in jet fuel deliveries patterns. In fact, in the past several years, July deliveries have frequently been below the annual average of the corresponding year. Apparently, some of the swings in usage are smoothed out through private inventory movements.

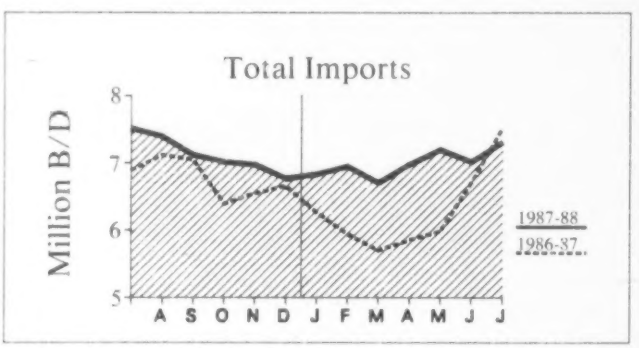
Other Oils

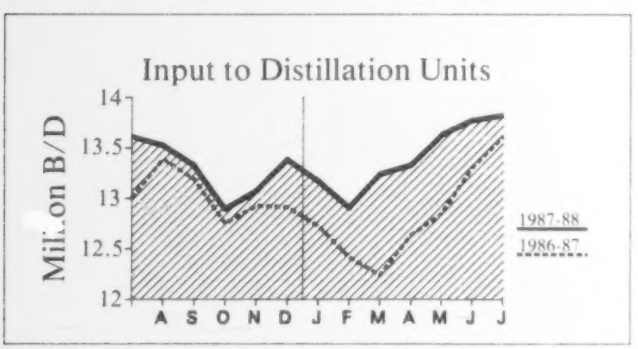
EARLIER STRENGTH TURNS TO DECLINE. Deliveries of other oils in July are estimated to be 4,064 thousand B/D, a decrease of 5.1 percent from last year but an increase of 2.8 percent from June. The estimate represents an apparent reversal of earlier strength in the category. The month-to-month increase, however, appears to reflect movements in asphalt and road oil deliveries, and is consistent with normal seasonal patterns.

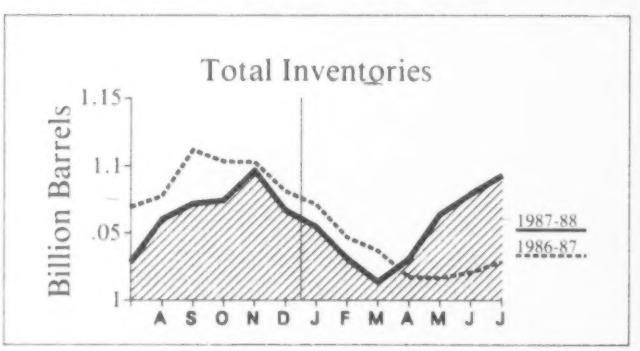
Several products are believed to be responsible for the ongoing weakness in the other oils category. In the petrochemicals group, temporary disruptions have reportedly affected production at several Gulf-area refineries, preventing significant growth in deliveries from last year's levels. Propane deliveries continue to display apparent weakness in the competitive olefin market, but ethane demand appears to be firm. Naphtha and gasoil are reported to have registered slight declines from last year's levels.

Although asphalt and road oil deliveries are believed to have increased from levels of the previous month in line with seasonal patterns, they remain substantially below last year's levels. The drought has continued to affect deliveries, even though barge movements have increased somewhat from last month's levels. Some of the continued weakness, however, is reportedly due to the earlier lack of rain which allowed completion of road maintenance programs ahead of schedule. On the East and West Coasts, moreover, revenue constraints in several states are believed to be hampering road building and maintenance activity.









SUPPLY [1/]

Production

CRUDE PRODUCTION DOWN, NGLs HOLD THEIR OWN.

With Alaskan production remaining in the 1.9-2.0 million B/D range so far this year, crude oil output there has continued to provide some offset to declines in the lower 48. For July, production outside Alaska fell about 150 thousand B/D versus one year earlier, but a 50 thousand B/D increase for Alaska held the decline for the U.S. as a whole to about 100 thousand B/D.

Natural gas liquids production, which currently supplies about a tenth of domestic consumption, has been subject to differing forces compared with crude oil. It has not followed the steady decline that crude oil has experienced since its price dropped precipitously in 1986, a decline that now amounts to roughly 1 million B/D. Though natural gas liquids output has varied over the period in response to its components' values as petrochemical feedstocks and natural gas demand, production this year has averaged 1.6 million B/D—the same as in 1985.

Imports

LAST JULY'S RECORD IS NEARLY MATCHED THIS YEAR.

Imports reached the highest level in almost a year in July, and, at 7.3 million B/D, came close to last July's recent-year record. Almost all of the month's imports went towards meeting consumption, with less going to boost inventories than was the case during the second quarter.

Product imports, which had been running at about 1.9 million B/D in recent months, rose to 2.1 million B/D in July with help from gasoline. Imports of gasoline and components reached a new high of almost 600 thousand B/D; distillate imports declined 170 thousand B/D from high levels a year ago, and residual fuel oil imports fell 270 thousand B/D in the face of weaker demand. The net result was a year-to-year decline in product imports of about 200 thousand B/D from last July's higher-than-usual levels.

Refinery Operations

UTILIZATION HIGH, GASOLINE OUTPUT PASSES LAST JULY'S.

The demand growth of the last several years, combined with the fact that refineries are usually most active in the summer months when demand is seasonally stronger, helped to put input to distillation units at the highest level since 1980 in July. Utilization, at 86.9 percent of operable capacity, also reached its highest level of the 1980s. If adjusted for capacity classified as 'operable' but not currently in operation, utilization for the month would have been 92 percent, a level only rarely experienced in the past decade.

The high utilization rate, combined with increasing emphasis on gasoline production as the month progressed, helped the month's gasoline output to slightly exceed last July's level, setting a new recent-year high for the month. The growth in distillate deliveries was reflected in production of that product, which rose 5 percent from last July's level. For residual fuel oil, however, output declined only slightly despite weak deliveries.

Inventories

BUILD SLOWS, CRUDE STOCKS FALL.

After rising 65 million barrels during the second quarter, inventories' rise slowed to a 14 million barrel increase in July—close to the seasonal average. Crude oil stocks, in particular, reflected the shift in inventory behavior, falling 12 million barrels from the roughly 360 million barrel level they had maintained for the previous several months. Even with the decline, crude oil inventories at the end of the month were still high compared with recent years' experience and 24 million barrels above the level of one year earlier.

Gasoline inventories remained steady throughout the month, though at levels lower than typical for the recent past. As noted last month, gasoline inventories in recent years have played a minor role at best in meeting summer gasoline demand; this year's June-July draw of approximately 14 million barrels (about 3 percent of deliveries) has actually been somewhat larger than average.

1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 551 million barrels as of July 31, 1988).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	JULY			YEAR-TO-DATE		
	1988[1]	1987[2]	% Change	1988[3R]	1987[2]	% Change
Products Supplied:						
Total motor gasoline	7,546	7,581	(0.5)	7,257	7,173	1.2
Finished leaded motor gasoline*	1,386	1,841	(24.7)	1,405	1,817	(22.7)
Finished unleaded motor gasoline*	6,160	5,740	7.3	5,852	5,356	9.3
Naphtha-jet	202	224	(9.8)	205	202	1.5
Kerosine-jet	1,169	1,165	0.3	1,214	1,162	4.5
Distillate fuel oil	2,773	2,713	2.2	3,098	2,989	3.6
Residual fuel oil	1,138	1,339	(15.0)	1,298	1,285	1.0
All other oils[4]	4,064	4,282	(5.1)	4,011	4,002	0.2
Reclassified[5]	- 169	- 191	(11.5)	- 192	- 211	(9.0)
Total domestic products supplied	16,723	17,113	(2.3)	16,891	16,602	1.7
Exports	749	680	10.1	800	752	6.4
Total products supplied	17,472	17,793	(1.8)	17,691	17,354	1.9
Supply:						
Domestic production:						
Crude oil[6]	8,155	8,251	(1.2)	8,202	8,385	(2.2)
Natural gas liquids	1,620	1,582	2.4	1,606	1,590	1.0
Other supply[7]	837	697	20.1	1,012	848	19.3
Total domestic supply	10,612	10,530	0.8	10,820	10,823	-
Imports:						
Crude oil, total	5,208 10/	5,218 10/	(0.2)	4,938 10/	4 303 10/	14.8
Canadian	687	672	2.2	685	611	12.1
Other	4,521	4,546	(0.5)	4,253	3 692	15.2
Products, total	2,095	2,293	(8.6)	2,056	1,980	3.8
Residual fuel oil	450	721	(37.6)	552	587	(6.0)
Other	1,645	1,572	4.6	1,504	1,393	8.0
Total imports	7,303	7,511	(2.8)	6,994	6,283	11.3
Total supply	17,915	18,041	(0.7)	17,814	17,106	4.1
Stock change, all oils	+ 443	+ 248	XXXX	+ 123	- 248	XXXX
Refinery Operations						
Input to crude oil distillation units	13,825	13,612	1.6	13,416	12,830	4.6
Operable capacity	15,917	15,701	1.4	15,909	15,585	2.1
Refinery utilization (%)[8]	86.9%	86.7%	0.2	84.3%	82.3%	2.4
Crude oil runs	13,672	13,430	1.8	13,238	12,680	4.4

Stocks (millions bbls.)	1988		1987[2]	% Change from ...	
	July 31[9]	June 30[9]	July 31	Previous Month	Year Ago
Crude oil 10/	347.6	359.2r/	323.8	(3.2)	7.4
Unfinished oils	113.3	112.2r/	100.0	1.0	13.3
Total motor gasoline**	211.2	209.7	226.4	0.7	(6.7)
Finished leaded motor gasoline*	43.0	42.7	54.7	0.7	(21.4)
Finished unleaded motor gasoline*	131.9	132.1	134.2	(0.2)	(1.7)
Naphtha-jet	7.2	6.7	7.3	7.5	(1.4)
Kerosine-jet	39.6	38.7r/	39.5	2.3	0.3
Distillate fuel oil	118.4	111.4r/	114.6	6.3	3.3
Residual fuel oil	40.7	41.1	44.7	(1.0)	(8.9)
All other oils	214.9	200.1r/	172.2	7.4	24.8
Total all oils	1,092.9	1,079.1r/	1,028.5	1.3	6.3

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: January-May, U.S. Department of Energy, June-July, API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

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Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 12, No. 8

SEPTEMBER 14, 1988

AUGUST 1988

SUMMARY

With the largest year-to-year increase since the first quarter, total deliveries, at least on the surface, showed somewhat more strength in August than had been evident during the past several months. The 2.2 percent, 362 thousand B/D increase over last August, however, sprang partly from deliveries a year ago which were 200-250 thousand B/D below trend. Had the year-ago level been more in line, this August's increase would have come out to roughly 1 percent.

Though not all of the slowdown in deliveries' growth in the past several months necessarily represents weakening consumption, developments for several fuels suggest that the slowdown consists of more than a fluctuation around the previous trend. Slower growth in air traffic has shown up in reduced growth for kerosine jet fuel, while evidence of moderating demand for residual fuel oil and "other oils" has also appeared in recent months. Overall consumption growth is estimated to be running at around 2 percent.

Domestic crude oil production, which has shown steady declines for the past two and a half years, fell again in August to a level about 70 thousand B/D lower than one year earlier; production in the lower 48 fell almost 175 thousand B/D, while Alaskan production continued to hover around 2 million B/D as it has since late last year. Imports continued at over 7 million B/D, not far short of last August's high levels. Though most of this year's roughly 550 thousand B/D increase in imports so far has consisted of crude oil, the summer's imports of gasoline and components have been the highest ever, exceeding half a million B/D.

Refinery production of gasoline has also been climbing in recent months; in August it reached the highest level in nearly ten years. With refinery utilization rates topping recent-year records, product stocks rose while crude oil inventories fell; overall, however, total stocks remained nearly the same.

PRODUCT SUPPLIED[1/]

Gasoline

AUGUST REVERSES JULY'S DECLINE. Reversing July's decline, gasoline deliveries in August rose 1.3 percent over a year ago—but the increase still fell short of gains earlier in the year.

However, the latest data show that travel is maintaining its growth of about 3.6 percent over a year ago, similar to that of last year when gasoline deliveries were rising at a 2.4 percent rate. With reports of distributors' efforts to keep inventories low in order to minimize the risks of recent increased price uncertainty, it can be inferred that at least some of gasoline's slower deliveries of the past few months have been due to non-primary stock drawdowns.

Even if this is the case, deliveries growth for the past eight months has averaged about 1.5 percent—and nonprimary stock movements would normally tend to wash out over such longer periods—indicating consumption growth close to that rate as well. Thus, the implied increase in fuel efficiency of about 2 percent this year would be double that of recent years. Although such a rate is possible, it seems high in light of the flattening out of new-car efficiency improvements since 1986. The apparent discrepancy between deliveries data and consumption indicators may indicate that the initial underestimation of gasoline imports—and thus deliveries—that has occurred in the past few years is recurring; such underestimation is more likely in periods of unusually strong imports such as have taken place this summer.

The rate of improvement in the new car fleet's average fuel efficiency has closely paralleled gasoline prices over the last decade and a half, influenced by the effect of gasoline price levels on the demand for smaller and more fuel-efficient cars. From 1974 to 1981, inflation-adjusted gasoline prices were significantly higher than in the years immediately preceding—at one point in early 1981 reaching levels nearly double those existing prior to the Arab oil embargo of 1973. Over this period, the rated efficiency of the new car fleet rose an average of 1.7 miles per gallon per year.

From 1981 until 1986, gasoline prices drifted downwards—and the annual average improvement in new-car efficiency slowed to 0.5 miles per gallon per year. In the post-1986-price-crash era, gasoline prices have now fallen to levels that, once adjusted for inflation, are roughly equal to those just prior to 1973—and the weighted average fuel efficiency rating of new cars has held steady at a little over 28 miles per gallon. Even so,

API ESTIMATES

	AUGUST		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.7	2.2	16.9	2.1
Crude oil production[2/]	8.1	(0.8)	8.2	(2.1)
Total imports[3/]	7.0	(4.6)	7.0	8.7
Stocks (million bbl)[3/]	1,077	1.6	na	na

turnover of the fleet continues to raise the average economy of existing vehicles, but at a slower rate, estimated to be about 1 percent per year for the last couple of years.

Distillates

HIGHWAY USE CONTINUES AS LEAD GROWTH FACTOR. Unusually low deliveries a year ago helped to boost this August's year-to-year comparison for distillates to a nearly 12 percent increase. Had not last August's deliveries been roughly 200 thousand B/D below trend, this August's deliveries would still have risen by 3 to 4 percent.

This is similar to the estimated underlying growth in distillate consumption, which continues to be propelled in large part by transportation demand. Though truck traffic growth is estimated to be continuing at a 5 to 6 percent rate, rail traffic has recently been rising at less than half of the 8 percent witnessed in the first half of this year. Since, in terms of relative market share, only about a fifth as much fuel is consumed on the rails as on the highways, reduced growth for rail traffic has not resulted in a major slowing for the land transportation segment of distillate demand.

Other sectors individually have not had nearly as large an impact on deliveries as on-highway usage. Nevertheless, the strength of the economy has likely pushed up usage in most of these other sectors, though the drought has likely cut consumption in the farm sector. Though for sectors taken singly, these effects have been small in proportion to overall distillate demand, we estimate that together their net contribution amounts to as much as a quarter of the current estimated increase in consumption.

Residual Fuel Oil

HOT WEATHER SPURS UTILITY USE BUT TOTAL IS DOWN. Deliveries of residual fuel oil in August are estimated to be 1,146 thousand B/D, representing a decline of 2.6 percent from last year but a slight increase of 0.7 percent from July. The current estimate therefore represents a continuing pattern of stable deliveries seen during the last several months at levels substantially lower than those recorded earlier in the year.

Despite continuing high utilization of industrial capacity, industrial demand for heavy fuel oil continues to be weak. Part of the softness is due to the seasonal increase in interruptible gas supplies, which are competitive with heavy fuel oil. But some of the recent increase in gas supplies is also believed to be the result of the willingness of suppliers to provide more gas after a period of limited deliveries due to unattractive wellhead prices. This has apparently displaced additional quantities of fuel oil delivered to this sector.

As in the previous month, electric utilities' demand for residual fuel was believed to be the main positive influence on deliveries of the fuel as whole. But much of the demand took place in the first half of the month as a result of continued abnormally high temperatures. Deliveries, however, were reported to have slowed considerably during the second half of the month as a result of the change in the weather. Cooling-degree days were about 20 percent higher than normal for the month. Nonetheless, increased supplies of interruptible gas were believed to have sharply limited the increases in fuel oil deliveries to utilities.

Deliveries of bunker fuel are believed to be weak in most parts of the country. East Coast markets are reported to be slow as a result of the availability of more competitive sources in Rotterdam. Gulf Coast activity is reported to have been unusually slow for much of the month due to lack of shipping activity. In addition, domestic deliveries of bunker fuel on the West Coast are believed to have been displaced by large export cargoes to other parts of the Pacific Rim.

Kerosine Jet Fuel

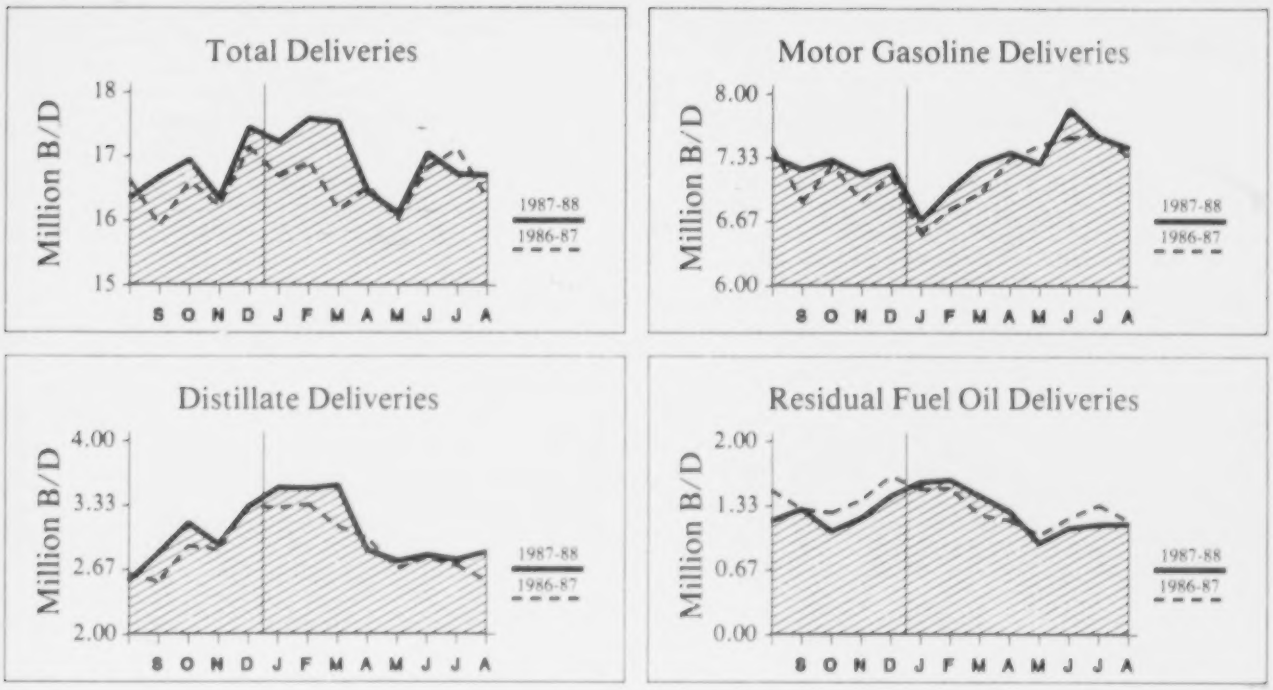
DELIVERIES' GROWTH SLOWING WITH AIR TRAFFIC. Kerosine jet fuel deliveries' growth continued its slower pace in August, rising only 0.8 percent over the same month a year ago. For a fuel that has been the fastest-growing major product in all but one of the past five years (residual fuel oil's percentage increase exceeded that of kerosine jet fuel in 1986), this year's slowing in deliveries is a significant shift. Roughly paralleling air traffic, deliveries' growth rate slipped from 7 percent in the first quarter to 4 percent in the second; so far in the third quarter, it has averaged less than 1 percent, though air traffic is estimated to be growing at a slightly higher rate.

Other Oils

DOWN 1.6 PERCENT FOR AUGUST. Deliveries of other oils in August are estimated to be 4,027 thousand B/D, representing a decline of 0.9 percent from last month and 1.6 percent from August, 1987. The slight decrease from last year's levels apparently represents continued moderation of strength in the category that began to take place earlier in the year.

Deliveries of petrochemical feedstocks, which were reported to be similar to those of the last several months, are believed to be responsible for much of the moderation in other oils' deliveries. Purity ethane deliveries, however, are reportedly robust as a result of their high ethylene product value and lack of lower-priced co-products. Ethane continues to be the most desired feedstock in an environment of high capacity utilization for petrochemical plants. Propane deliveries are also reported to be strong, but ethane continues to dominate the light end of the olefin markets. Normal and iso-butane deliveries, however, are reported to have declined slightly as a result of higher demand for other feedstocks. At the heavier end, naphtha and gasoil apparently continue to maintain their market share by being the most economical feedstocks.

Asphalt and road oil deliveries were reported to be strong in August, the peak month of activity for this product. In addition to the seasonal upswing, the rise in activity represents an apparent reversal of weakness seen during the summer. After delays implementing budgets for the new fiscal year in several states, road building and maintenance activity was reported to have made substantial gains, but the increases were not uniform. West Coast deliveries were believed to be somewhat higher than those of last year, but East Coast activity was believed to have trailed last year's pace slightly.



SUPPLY[1/]

Production

ALASKA STEADY, LOWER 48 OUTPUT STILL FALLING. With August's year-to-year decline of about 70 thousand B/D, domestic crude oil production's fall has continued steadily now for two and half years. Alaskan production, though up roughly 100 thousand B/D year to year, has remained near 2 million B/D since late last year. Lower 48 production has continued to fade, with August's output down about 175 thousand B/D from a year ago and more than 1.1 million B/D from early 1986.

The partial recovery that began last year in well servicing, needed to maintain existing wells' production, now appears to be eroding. Last year's recovery, though significant, restored only about half of the nearly-50 percent drop well servicing had experienced following the 1986 oil price crash. Well servicing has continued somewhere near these higher levels for much of this year, but recent months' data have been slipping; the lower crude oil prices and increased price uncertainty of the past several months have no doubt reduced the amount of well servicing that is economic to undertake.

Imports

UP OVER ONE HALF MILLION B/D FOR EIGHT MONTHS. Though slipping from July's strong 7.3 million B/D, imports continued at over 7 million B/D in August. Because of frequent short-term swings in imports, one-month comparisons are often less informative than longer-term developments. Specifically, the past two months' imports have shown declines of 3 to 5 percent when compared with exceptionally strong imports in those same months last year, of which nearly 40 million barrels went to inventories rather than consumption. But for the first eight months as a whole, imports are ahead by more than half a million B/D, the logical consequence of the continued decline in domestic production and increase in consumption.

Overall, this year's increase in imports has been almost entirely in the form of crude oil rather than products. However, the growth in imports of gasoline and components during this year's peak driving season—for the first time averaging more than half a million B/D for June through August—continues the string of steady increases in these imports that have been taking place almost every summer since 1980. For August, imports of gasoline and components, though retreating from July's record level, still averaged more than 550 thousand B/D. Distillate imports were down slightly from a year ago, while residual fuel oil imports continued to lag behind last year's in response to weaker demand.

Refinery Operations

GASOLINE OUTPUT RISES ABOVE RECENT-YEAR RECORD. Refineries, already operating at rates high by recent historical standards in July, stretched further in August to reach the highest monthly utilization rate in almost ten years—88.0 percent.

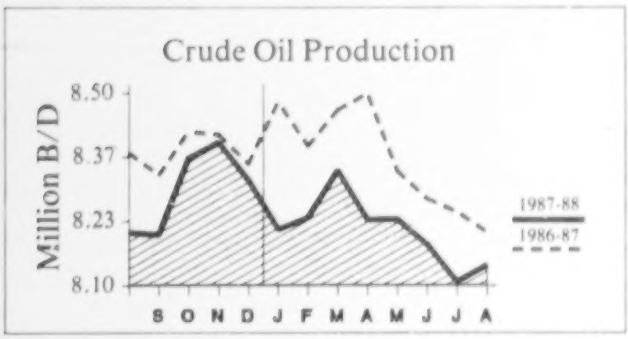
Gasoline production also pushed past recent-year records to nearly 7.2 million B/D, the highest monthly output in nearly ten years. While distillate production also rose, weak deliveries for kerosine jet fuel and residual fuel oil were reflected in year-to-year declines in output for those products.

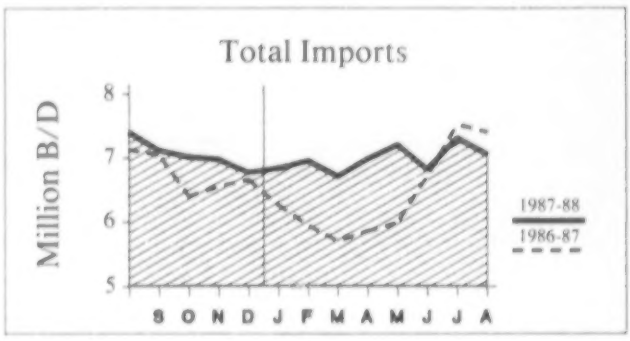
Inventories

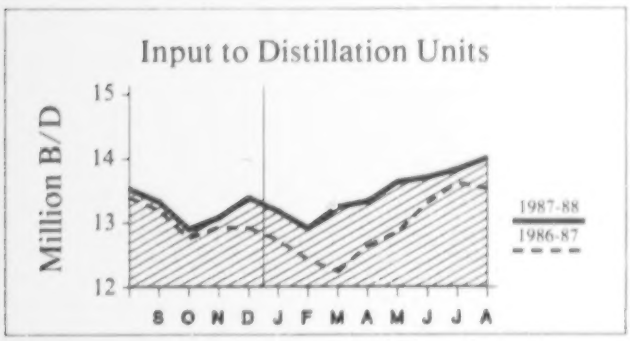
CRUDE STOCKS FALL FOR SECOND MONTH. Total stocks were nearly unchanged in August, but high refinery runs transformed crude oil barrels into product inventories; crude stocks fell 18 million barrels, with product stocks rising by a slightly greater amount.

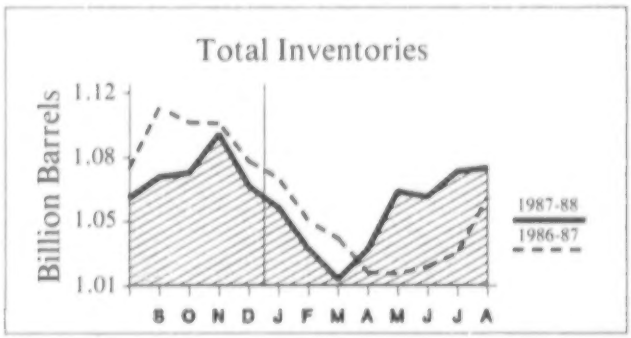
Crude oil inventories, which had risen to nearly 360 million barrels at the end of June—one of the highest levels in five years—slipped for the second month in a row in August. Over that two-month period they have fallen about 30 million barrels as uncertainty over the direction of OPEC production and its effect on world petroleum markets has increased the risk of holding inventories.

In a departure from the typical August pattern, refinery emphasis on gasoline production, combined with stronger deliveries for distillates, gave a bigger boost to gasoline than to distillate inventories. This reversal, however, compensated in part for the relative stock levels of the two products. Gasoline inventories, which have been lower than in recent years, rose close to 6 million barrels, while distillate stocks, rising 4 million barrels, nearly equaled those of a year ago.









1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 552 million barrels as of August 31, 1988).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	AUGUST			YEAR-TO-DATE		
	1988[1]	1987[2]	% Change	1988[3R]	1987[2]	% Change
Products Supplied:						
Total motor gasoline	7,434	7,338	1.3	7,302	7,194	1.5
Finished leaded motor gasoline*	1,311	1,682	(22.1)	1,401	1,800	(22.2)
Finished unleaded motor gasoline*	6,123	5,656	8.3	5,901	5,394	9.4
Naphtha-jet	219	218	0.5	211	204	3.4
Kerosine-jet	1,209	1,199	0.8	1,216	1,167	4.2
Distillate fuel oil	2,851	2,553	11.7	3,077	2,933	4.9
Residual fuel oil	1,146	1,176	(2.6)	1,278	1,271	0.6
All other oils[4]	4,027	4,094	(1.6)	4,016	4,014	-
Reclassified[5]	- 177	- 231	(23.4)	- 180	- 213	(15.5)
Total domestic products supplied	16,709	16,347	2.2	16,920	16,570	2.1
Exports	878	664	32.2	832	741	12.3
Total products supplied	17,587	17,011	3.4	17,752	17,311	2.5
Supply:						
Domestic production:						
Crude oil[6]	8,141	8,210	(0.8)	8,183	8,363	(2.1)
Natural gas liquids	1,601	1,571	1.9	1,606	1,588	1.1
Other supply[7]	856	857	(0.1)	1,019	849	20.0
Total domestic supply	10,598	10,638	(0.4)	10,813	10,800	0.1
Imports:						
Crude oil, total	5,179[10/]	5,447[10/]	(4.9)	4,952[10/]	4,449[10/]	11.3
Canadian	655	613	6.9	684	611	11.9
Other	4,524	4,834	(6.4)	4,268	3,838	11.2
Products, total	1,869	1,944	(3.9)	2,029	1,976	2.7
Residual fuel oil	492	512	(3.9)	540	577	(6.4)
Other	1,377	1,432	(3.8)	1,489	1,399	6.4
Total imports	7,048	7,391	(4.6)	6,981	6,425	8.7
Total supply	17,646	18,029	(2.1)	17,794	17,225	3.3
Stock change, all oils	+ 59	+1,018	XXXX	+ 42	- 86	XXXX
Refinery Operations						
Input to crude oil distillation units	14,004	13,527	3.5	13,481	12,919	4.4
Operable capacity	15,917	15,598	2.0	15,899	15,587	2.0
Refinery utilization (%)[8]	88.0%	86.7%	1.5	84.8%	82.9%	2.3
Crude oil runs	13,853	13,380	3.5	13,312	12,770	4.2

Stocks (millions bbls.)	1988		1987[2]	% Change from . . .	
	Aug. 31[9]	July 31[9]	Aug. 31	Previous Month	Year Ago
Crude oil [10/]	329.8	348.1r/	332.5	(5.3)	(0.8)
Unfinished oils	111.6	113.4r/	103.6	(1.6)	7.7
Total motor gasoline**	216.6	211.1r/	226.5	2.6	(4.4)
Finished leaded motor gasoline*	43.0	43.0	53.8	-	(20.1)
Finished unleaded motor gasoline*	136.7	131.8r/	134.2	3.7	1.9
Naphtha-jet	7.0	7.2	7.0	(2.8)	-
Kerosine-jet	40.3	39.6	40.8	1.8	(1.2)
Distillate fuel oil	123.3	118.9r/	124.7	3.7	(1.1)
Residual fuel oil	38.8	40.2r/	45.7	(3.5)	(15.1)
All other oils	209.5	196.6r/	179.2	6.6	16.9
Total all oils	1,076.9	1,075.1r/	1,060.0	0.2	1.6

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: January-June, U.S. Department of Energy, July-August, API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarb[illegible]cessing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Ope[illegible]"
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (S[illegible] oil s[illegible]in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending [illegible]

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Monthly Statistical Report

Prepared by the Finance, Accounting, and Statistics Department

Vol. 12, No. 9

OCTOBER 19, 1988

SEPTEMBER 1988

SUMMARY

Residual fuel oil's continuing year-to-year declines partially offset third quarter increases for gasoline, distillates, and kerosine jet fuel, holding the quarter's total deliveries to a level only 0.7 percent higher than one year earlier. Excluding residual fuel oil, however, the increase for the remaining products amounted to 1.4 percent—slightly stronger than the second quarter's 0.7 percent rise for this group of products.

These figures include gasoline deliveries, which, though rising 1.2 percent for September, averaged only 0.3 percent higher for the quarter—still in disagreement with travel growth, which has continued at a steady 3.6 percent rate so far this year. For distillate, postponed buying by affected off-highway users as a result of pending excise tax legislation helped to pull distillate deliveries down for much of September. Nevertheless, despite nearly flat results for the month, quarterly growth still amounted to 3.1 percent.

Threatened by hurricanes Florence and Gilbert, offshore production in the Gulf was shut down for several days during the month as several thousand workers were evacuated. As a result, domestic crude oil production, already on a downtrend since the oil price collapse of 1986, slipped below 8 million B/D for the first time in more than a decade.

The tropical storms also temporarily hindered petroleum shipments into the Gulf Coast, though imports for September as a whole still roughly matched the 6.9 million B/D average of the first nine months. Though shipments from the Persian Gulf now account for a fifth of U.S. imports, they have supplied more than half of the roughly 2 million B/D increase in imports over the past three years; worldwide, almost all the increase in non-communist crude oil production has come from this region.

Despite precautionary shutdowns in parts of the Gulf Coast due to the hurricanes, refinery input for September rose 1.5 percent over a year ago. Increasingly uncertain world markets led to a 5 million barrel decline in total inventories, in contrast to an average seasonal increase of about 17 million barrels. Crude stocks fell for the third month in a row, reaching the lowest level in more than a year. Distillate stocks, however, rose in line with normal increases for the season to a level 3 million barrels higher than a year ago.

PRODUCT SUPPLIED[1/]

Gasoline

DELIVERIES STILL LAG BEHIND TRAVEL. Gasoline deliveries continued to diverge from other indicators of demand during the third quarter. September's 1.2 percent increase, when combined with mixed results for the previous two months, yielded only a marginal increase for the quarter as a whole. The slowing in deliveries growth rates over the past three quarters—from 3.2 percent in the first quarter to 0.8 percent in the second and 0.3 percent in the third—contrasts with data on miles traveled. Travel has shown steady gains of 3.6 percent for both the first and second quarters, rising slightly to 3.7 percent for July, the most recent month available.

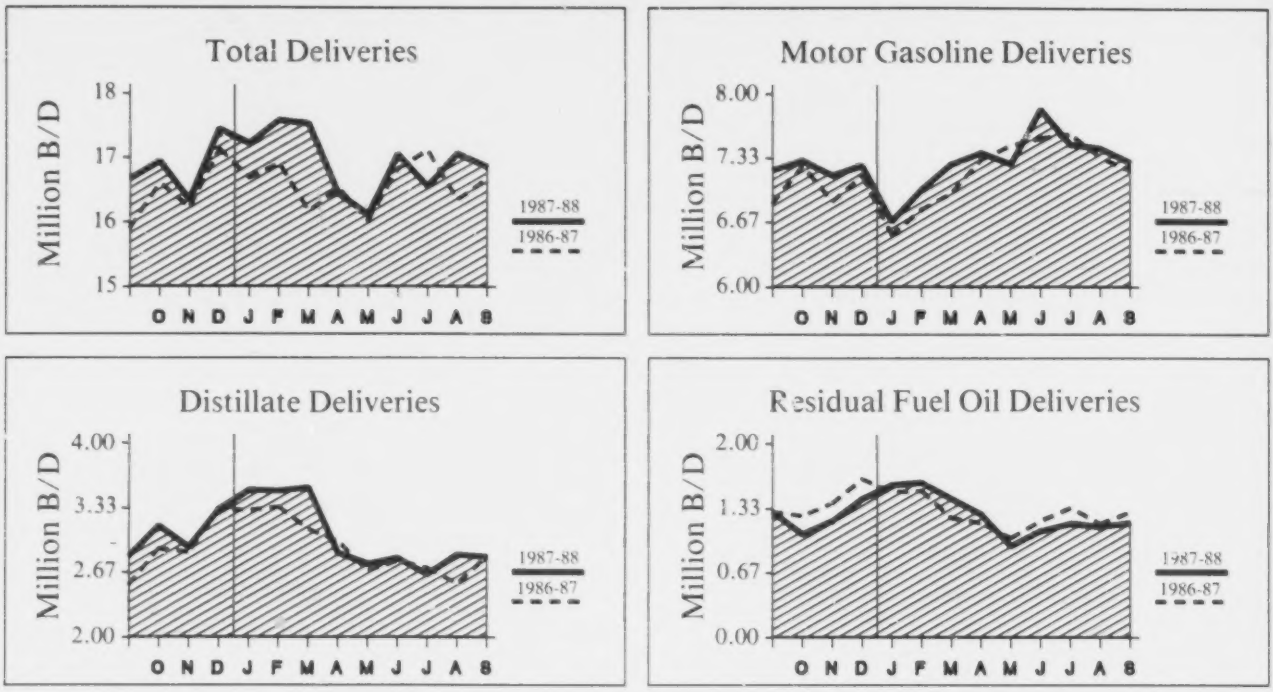
For the first time ever, sales of premium unleaded are now surpassing those of leaded regular. Leaded's market share, falling at a rate of 6 percentage points from a year ago, now accounts for only 17 percent of the market—a drop of almost 30 percentage points in the past five years. Premium unleaded's share has climbed to over 23 percent, up about 3 percentage points over a year ago, according to Department of Energy data. This represents a continuation of last year's slightly higher market penetration rate; in the two years prior to 1987, premium unleaded's share had grown by only 1 or 2 percentage points per year. The remainder of leaded's loss has translated into gains for unleaded regular and midgrade.

Distillates

FLAT FOR SEPTEMBER BUT UP FOR THE THIRD QUARTER. Though declining slightly for September, distillate deliveries for the quarter as a whole were still up 3.1 percent compared with a year ago. September's weak performance is likely attributable in part to the effects of a potential change in Federal excise tax collection which had been expected by many to be enacted by the end of the month. Though at the last minute, Congressional action was delayed, the change

API ESTIMATES

	SEPTEMBER		YEAR-TO-DATE	
	Million B/D	Percent Change	Million B/D	Percent Change
Total domestic deliveries	16.9	1.1	16.9	2.1
Crude oil production[2/]	7.9	(3.3)	8.2	(2.3)
Total imports[3/]	6.9	(3.0)	6.9	6.8
Stocks (million bbl)[3/]	1,064	(0.7)	na	na



would have meant that, effective October 1, affected off-highway users would no longer have had to pay the excise tax up front and then apply for a refund. Until it became clear that the bill's passage was delayed, this may have led many such users to postpone September purchases until later in the year.

The change in tax law would have been a reversal of the one which took place last April 1, when most exempt and off-highway users lost the ability to purchase diesel fuel tax-free. At that time, too, the change was apparent in deliveries data; March deliveries had jumped nearly 14 percent over the previous March, while deliveries the following month were off 4 percent.

Residual Fuel Oil

LOWER DELIVERIES CONTINUE. Deliveries of residual fuel oil are estimated to be 1,186 thousand B/D, representing an increase of 3.5 percent from last month but a decline of 8.5 percent from a year ago. Although the most recent estimate indicates a slight firming of demand for the product, it still reflects the fundamental weakness seen during the past several months. As a result, deliveries for the third quarter are estimated to be 1,167 thousand B/D, a decline of 103 thousand B/D, or 8.1 percent, from last year's levels.

The utility and industrial sectors are believed to have contributed to the weakness in demand. Electric utilities, having been one of the more positive influences in previous months due to the abnormally warm weather, are reported to have decreased deliveries as a result of the return to more normal climatic conditions. Heavy fuel oil's recent favorable price advantage over natural gas, however, apparently encouraged several utility and industrial customers to begin to increase their purchases of heavy fuel oil towards the end of the month.

Bunker fuel markets also continue to remain weak in all regions of the country. Spot purchases of bunker fuel, especially on the East and Gulf Coasts, have apparently been discouraged due to the fear of possible further price weakness, and only minimum contract volumes are being delivered. Moreover, a price advantage for Rotterdam bunkers, which had already been displacing East Coast sources, is reportedly beginning to have the same dampening effect on Gulf Coast deliveries. Deliveries, however, were reportedly beginning to stabilize by the end of the month, albeit at low levels.

Kerosine Jet Fuel

LESS GROWTH IN DOMESTIC TRAVEL SLOWS DELIVERIES. Kerosine jet fuel deliveries' smaller increase for the third quarter mirrors the slower growth in air traffic of recent months. With the inclusion of September's 5.1 percent increase, deliveries for the quarter as a whole still rose only 2.4 percent, contrasting with 6.9 percent in the first quarter and 3.9 percent in the second. Last year's annual increase had been nearly 7 percent.

Air traffic growth continued at a lower rate in the third quarter, estimated to be similar to the second quarter's rise of about 3 percent and down from last year's 8 percent increase. Higher fares have dampened domestic traffic growth, though the lower dollar has kept the smaller volume of international traffic growing at about a 13 percent rate in recent months.

Other Oils

DELIVERIES FOR THE QUARTER MATCH LAST YEAR'S. Deliveries of other oils are estimated to be 4,336 thousand B/D, representing and increase of 0.7 percent from last year. For the third quarter, however, other oils deliveries

were estimated at 4,226 thousand B/D, even with levels of a year ago as a result of moderation in petrochemical feedstock deliveries earlier in the quarter.

Deliveries of feedstocks, however, are believed to have firmed up in the most recent month. Olefin plants were reported to have been operated at close to their rated capacities. Propane deliveries, having borne much of the earlier weakness, have apparently regained much of their lost market share as a result of continuing robust demand for ethylene feedstocks as a whole. Purity ethane, the most preferred feedstock, continues to experience apparent strong deliveries due to its high ethylene product value and lack of less valued co-products. Reversing an apparent downward trend, butanes are also reportedly experiencing small but measurable increases in deliveries. In anticipation of new vapor-pressure regulations for gasoline, several petrochemical plants are reportedly experimenting with butanes as an alternative ethylene feedstock. At the heavier end, naphtha and gasoil are reportedly maintaining their market share of the feedstock market.

Asphalt and road oil deliveries were also reported to have contributed to the strength in deliveries in this category. Several states, still recovering from late-summer weakness, are reported to have sustained high levels of activity in their road building and maintenance programs which were held up as a result of earlier delays in adopting new budgets. Refinery gas deliveries, however, are apparently slightly lower than last month as a result of seasonal declines in motor gasoline production.

SUPPLY[1/]

Production

OFFSHORE, FLORENCE AND GILBERT HINDER OPERATIONS. Domestic crude oil production, which has been heading downward since the 1986 oil price collapse, fell below 8 million B/D for the first time in more than a decade as hurricanes hampered offshore production in the Gulf of Mexico. September's production, estimated at 7,938 thousand B/D, declined nearly 270 thousand B/D from a year ago, with output in the lower 48 falling by over 400 thousand B/D.

The storms are estimated to have cut domestic production by more than 100 thousand B/D for the month as precautionary moves against hurricanes Florence and Gilbert—the latter the most powerful hurricane to threaten the region this century—led to the shutting in of production platforms for several days while thousands of workers were evacuated. Fortunately, the storms caused little damage to offshore facilities in the Gulf.

Though the effects of the hurricanes on domestic production were temporary, the lower crude oil prices of the past two and a half years, especially with the weakening that has taken place in the past several months, have had more long-lasting effects on upstream activity. Despite substantially lower drilling costs—recently-released data from the *Joint Association Survey* show a 25 percent decline in cost per foot from 1985 to 1987, once adjusted for changes in regions and depth categories—drilling activity has remained depressed. Third quarter completions are estimated to be down 12 percent from a year ago and over 50 percent from the same quarter in 1985.

Imports

DESPITE DELAYS, SEPTEMBER IMPORTS MATCH YEAR TO DATE. Despite temporary shipping delays on the Gulf Coast caused by the hurricanes, imports for the month continued at 6.9 million barrels per day, similar to the year-to-date average. Though down about 5 percent in the third quarter from 1987's recent-year quarterly record of 7.3 million B/D, for the first nine months as a whole, imports are up about 440 thousand B/D or 6.8 percent.

Shipments from the Persian Gulf have been running at about 1.4 million B/D so far this year, about one fifth of all U.S. oil imports. On an incremental basis, however, imports from this region have accounted for more than half of the roughly 2 million B/D jump in imports over the past three years. Perhaps even more important than its place in the mix of U.S. imports sources is the role of this region in world markets, since U.S. importers, in fact, must compete with the rest of the world's petroleum importers for supplies. The incremental role of Persian Gulf oil in U.S. import figures actually understates the situation worldwide; nearly all of the increase in non-communist crude oil production over this period has come from the Persian Gulf.

Imports of motor gasoline and blending components subsided from August's record level, but at over 470 thousand B/D, where still relatively strong compared with imports for the same month in previous years. Distillate imports were within the range of recent experience for September, averaging about 270 thousand B/D. Residual fuel oil imports, which had dropped to less than 400 thousand B/D in June in re-

sponse to unfavorable price comparisons with domestic sources, have been recovering in recent months despite continued weakness in deliveries. September's imports rose to nearly 600 thousand B/D, up about 70 thousand B/D from a year ago and the highest monthly level since March.

Refinery Operations

INPUT RISES 1.5 PERCENT OVER LAST SEPTEMBER.

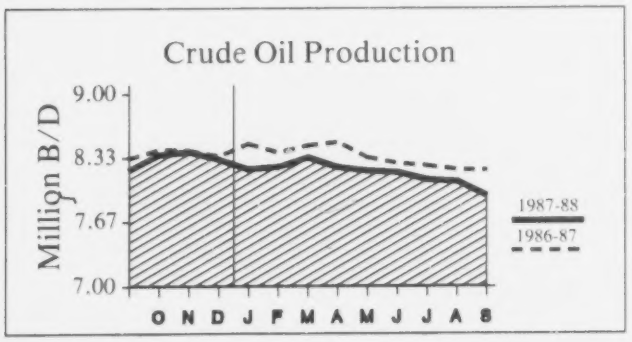
With the seasonal slackening of refinery activity from its summer peak, input to distillation units declined from a recent-year record in August of over 14 million B/D to 13.5 million B/D in September as the opportunity arose to undertake turnarounds and gear up for the coming heating season. September's input to distillation units, though following the traditional pattern of an August-September decline, still exceeded that of last September by 1.5 percent. This was despite temporary cutbacks in some areas of the Gulf Coast in response to hurricane Gilbert. As it turned out, the storm caused little if any damage to facilities.

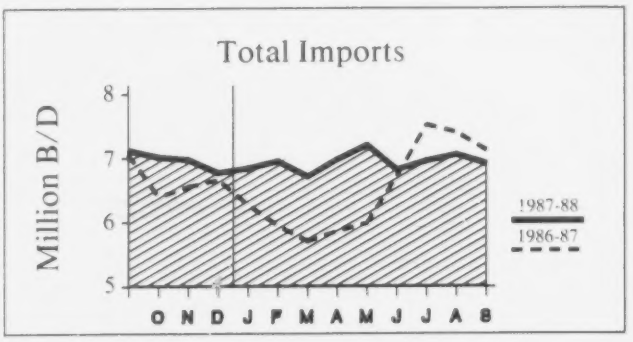
Refinery production for September roughly reflected deliveries trends of the past several months, with gasoline production up about 1 percent over last September and distillate output up about 3 percent.

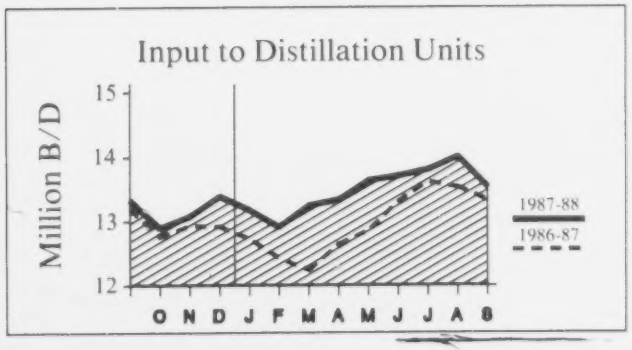
Inventories

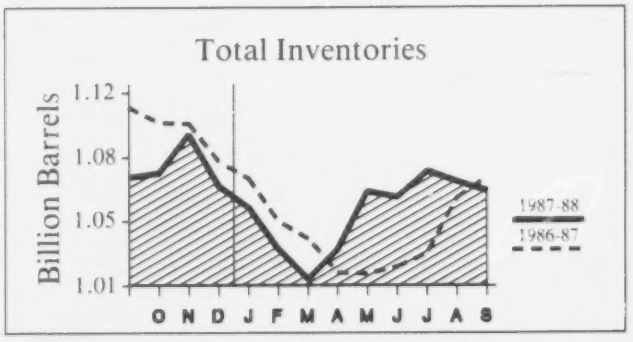
CONTRARY TO SEASONAL NORM, STOCKS FALL.

Total stocks fell 5 million barrels during September—in contrast with an average seasonal increase of about 17 million barrels—as increasingly uncertain world markets added to the risks of holding surplus inventories. Crude oil inventories fell for the third month in a row to 324 million barrels, the lowest level in more than a year. Distillate stocks, however, rose 7 million barrels, about average for the month; at month-end, distillate inventories stood at 130 million barrels, 3 million barrels higher than one year earlier.









1/ Total supply, i.e., production plus imports adjusted for net stock change is equal to total products supplied from primary storage. Total products supplied from primary storage less exports is equal to total domestic products supplied. Information contained in this report is derived from information published in the API Weekly Bulletin and is based on historical analysis of the industry. All data reflect the most current information available to the API and include all previously published revisions.

2/ Includes lease condensate.

3/ API data do not include crude oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR (according to the U.S. Department of Energy, the SPR held approximately 554 million barrels as of September 30, 1988).

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	SEPTEMBER			YEAR-TO-DATE		
	1988[1]	1987[2]	% Change	1988[3R]	1987[2]	% Change
Products Supplied:						
Total motor gasoline	7,289	7,205	1.2	7,292	7,195	1.4
Finished leaded motor gasoline*	1,242	1,669	(25.6)	1,380	1,785	(22.7)
Finished unleaded motor gasoline*	6,047	5,536	9.2	5,912	5,410	9.3
Naphtha-jet	212	221	(4.1)	212	206	2.9
Kerosine-jet	1,197	1,139	5.1	1,215	1,164	4.4
Distillate fuel oil	2,832	2,838	(0.2)	3,040	2,923	4.0
Residual fuel oil	1,186	1,296	(8.5)	1,269	1,274	(0.4)
All other oils[4]	4,336	4,306	0.7	4,080	4,046	0.8
Reclassified[5]	- 193	- 335	(42.4)	- 175	- 227	(22.9)
Total domestic products supplied	16,859	16,670	1.1	16,933	16,581	2.1
Exports	885	795	11.3	848	747	13.5
Total products supplied	17,744	17,465	1.6	17,781	17,328	2.6
Supply:						
Domestic production:						
Crude oil[6]	7,938	8,205	(3.3)	8,155	8,346	(2.3)
Natural gas liquids	1,614	1,582	2.0	1,606	1,587	1.2
Other supply[7]	1,110	957	16.0	1,070	861	24.3
Total domestic supply	10,662	10,744	(0.8)	10,831	10,794	0.3
Imports:						
Crude oil, total 10/	4,964	5,047	(1.6)	4,932	4,515	9.2
Canadian	614	609	0.8	676	611	10.6
Other	4,350	4,438	(2.0)	4,256	3,904	9.0
Products, total	1,941	2,068	(6.1)	2,008	1,986	1.1
Residual fuel oil	595	526	13.1	543	572	(5.1)
Other	1,346	1,542	(12.7)	1,465	1,414	3.6
Total imports	6,905	7,115	(3.0)	6,940	6,501	6.8
Total supply	17,567	17,859	(1.6)	17,771	17,295	2.8
Stock change, all oils	- 177	+ 394	XXXX	- 10	- 33	XXXX
Refinery Operations						
Input to crude oil distillation units	13,531	13,328	1.5	13,483	12,964	4.0
Operable capacity	15,917	15,593	2.1	15,905	15,587	2.0
Refinery utilization (%)[8]	85.0%	85.5%	(0.6)	84.8%	83.2%	1.9
Crude oil runs	13,400	13,168	1.8	13,320	12,813	4.0

Stocks (millions bbls.)	1988		1987[2]	% Change from ...	
	Sep. 30[9]	Aug. 31[9]	Sep. 30	Previous Month	Year Ago
Crude oil 10/	324.0	332.4r/	337.2	(2.5)	(3.9)
Unfinished oils	108.2	111.4r/	103.0	(2.9)	5.1
Total motor gasoline**	221.3	217.5r/	229.6	1.8	(3.6)
Finished leaded motor gasoline*	41.5	43.0	55.0	(3.5)	(24.6)
Finished unleaded motor gasoline*	141.3	137.7r/	136.2	2.6	3.7
Naphtha-jet	6.6	7.0	6.5	(5.7)	1.5
Kerosine-jet	41.5	40.5r/	43.7	2.5	(5.0)
Distillate fuel oil	129.9	123.0r/	126.8	5.6	2.4
Residual fuel oil	44.3	38.8	44.4	14.2	(0.2)
All other oils	188.3	198.8r/	180.6	(5.3)	4.3
Total all oils	1,064.1	1,069.4r/	1,071.8	(0.5)	(0.7)

1/ Based on API estimated data converted to a monthly basis.
2/ Source: U.S. Department of Energy.
3/ Source: January-July, U.S. Department of Energy, August-September, API.
4/ Includes crude losses.
5/ Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
6/ Includes lease condensate.
7/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
8/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
9/ Derived by interpolating API weekly stocks data.
10/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
R/ Revised.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

ESTIMATED UNITED STATES PETROLEUM BALANCE

(Daily Average in Thousands of 42 Gallon Barrels)

Products Supplied/Supply From Primary Storage	3rd QUARTER		
	1988[1]	1987[2]	% Change
Products Supplied:			
Total motor gasoline	7,397	7,377	0.3
Finished leaded motor gasoline*	1,302	1,731	(24.8)
Finished unleaded motor gasoline*	6,095	5,646	8.0
Naphtha-jet	215	221	(2.7)
Kerosine-jet	1,196	1,168	2.4
Distillate fuel oil	2,784	2,700	3.1
Residual fuel oil	1,167	1,270	(8.1)
All other oils[3]	4,226	4,225	0.0
Reclassified[4]	- 160	- 251	(36.3)
Total domestic products supplied	16,825	16,710	0.7
Exports	864	712	21.4
Total products supplied	17,689	17,422	1.5
Supply:			
Domestic production:			
Crude oil[5]	8,045	8,222	(2.2)
Natural gas liquids	1,608	1,578	1.9
Other supply[6]	1,077	836	28.8
Total domestic supply	10,730	10,636	0.9
Imports:			
Crude oil, total [9/]	5,057	5,239	(3.5)
Canadian	653	632	3.3
Other	4,404	4,607	(4.4)
Products, total	1,940	2,102	(7.7)
Residual fuel oil	498	587	(15.2)
Other	1,442	1,515	(4.8)
Total imports	6,997	7,341	(4.7)
Total supply	17,727	17,977	(1.4)
Stock change, all oils	+ 38	+ 555	XXXX
Refinery Operations			
Input to crude oil distillation units	13,780	13,491	2.1
Operable capacity	15,929	15,631	1.9
Refinery utilization (%)[7]	86.5%	86.3%	0.2
Crude oil runs	13,641	13,328	2.3

Stocks (millions bbls.)	3rd QUARTER		
	1988[8]	1987[2]	% Change
Crude oil [9/]	324.0	337.2	(3.9)
Unfinished oils	108.2	103.0	5.1
Total motor gasoline**	221.3	229.6	(3.6)
Finished leaded motor gasoline*	41.5	55.0	(24.6)
Finished unleaded motor gasoline*	141.3	136.2	3.7
Naphtha-jet	6.6	6.5	1.5
Kerosine-jet	41.5	43.7	(5.0)
Distillate fuel oil	129.9	126.8	2.4
Residual fuel oil	44.3	44.4	(0.2)
All other oils	188.3	180.6	4.3
Total all oils	1,064.1	1,071.8	(0.7)

1/ Source: U.S. Department of Energy, July; August-September, API.
2/ Source: U.S. Department of Energy.
3/ Includes crude losses.
4/ – Beginning with January 1981, U.S. Department of Energy began using a new data collection system which encompasses a method to ascertain the amount of product reclassified during the production phase. So that there will be no double counting of these volumes, they are subtracted from total domestic products supplied.
5/ Includes lease condensate.
6/ Includes Unaccounted-for crude oil, Refinery input of other hydrocarbons, and Processing gain.
7/ Represents "Input to crude oil distillation units" as a percent of "Operable capacity."
8/ Derived by interpolating API weekly stocks data.
9/ Data do not include oil imported for the Strategic Petroleum Reserve (SPR) nor crude oil stocks held in the SPR.
* Included in motor gasoline.
** Includes finished leaded, finished unleaded, and motor gasoline blending components stocks.

ASSESSING UNDERLYING TRENDS IN PETROLEUM DATA

The Variable Nature of Deliveries Data

We have found a need for ways to assess underlying trends in petroleum consumption because of the often-volatile nature of deliveries data. This volatility has been well-evident this year; the year-to-year change in total deliveries, for example, began 1988 with a 3.2 percent increase in January, rising to 8.4 percent in March, and then dropping precipitously to a 0.5 percent decline in April; similar swings have continued in more recent months. As petroleum analysts know, it is highly unlikely that substantial swings such as these correspond with dramatic changes in consumption. Thus, in our analysis at API we find there is a need for various techniques to get below the surface of the data in order to better understand what is really happening.

The reasons deliveries data differ from underlying consumption trends include:

1) Deliveries data measure only the disappearance from primary storage, and thus do not take into account movements in nonprimary inventories such as those held by distributors or end users—movements which have frequently been significant.

2) Unusual or short-term events, such as unusually cold winter weather, can temporarily affect consumption but have little long-term significance; these deviations in consumption tend to be reflected in deliveries as well.

3) Discrepancies between estimated consumption trends and deliveries data sometimes point to difficulties with the data arising from such factors as missing respondents or a need for additional collection methods.

Thus, in seeking a broader picture of where petroleum consumption has been going, we have found that the raw deliveries data alone may as frequently obscure developments as they elucidate them. Knowledge of underlying trends and market factors helps in interpreting whether the latest deliveries data represent a change in direction or only a temporary deviation from an existing trend, and in pinpointing in a more timely way a divergence from previous trends and expectations. This type of analysis also helps to locate potential data problems more rapidly than may otherwise be the case.

It should be noted that the goal is not to forecast future events, but rather to explain recent developments. The potential for shifts in economic growth, petroleum prices, and other market factors all but guarantee that future trends will differ from the recent past.

"Top Down" versus "Bottom Up"

It is possible to analyze consumption trends from the "top down" or from the "bottom up". The "top down" approach assesses the trend in total deliveries without regard for individual products, but in light of such factors as overall economic growth, petroleum price levels, and similar broad measures. The "bottom up" approach analyzes developments for individual products, combining the results into an overall trend.

We have found that the "top-down" approach, though attractive for its simplicity, has its pitfalls. Wide swings for individual products such as residual fuel oil, for example, can obscure trends for the remaining collection of products, or special circumstances that affect only one product may not be fully represented. Thus, we have found it more useful to proceed with a "bottom-up" approach as the primary method. Nevertheless, comparison with a "top-down" approach is a helpful check for consistency and serves as an indicator as to whether important considerations need to be re-examined.

Time Series Approaches

Whether a "top-down" or "bottom-up" approach is taken, there are several useful techniques for analyzing petroleum consumption trends. One group of techniques form the statistical or time-series-oriented approach, essentially manipulating the deliveries data series in an effort to separate short-term and seasonal variations from longer-term trends. Simpler approaches include forms of averaging—by converting the data to quarters or computing moving averages. These smooth out short-term fluctuations in an effort to make longer-term trends more apparent.

A slightly more sophisticated method is to estimate trend lines using regression analysis. Here, we have found that care must be taken that the undue influence of end-points does not mislead—especially because at least one of the end-points, i.e., the most recent month's deliveries, is usually the observation of most critical interest. A trend that is robust with respect to the period chosen is more reliable than one that shifts dramatically with the inclusion or exclusion of a few data points. Also, some series are too noisy or erratic to support a finding of a statistically significant trend—or the resulting degree of precision may be too wide to be particularly meaningful.

This type of analysis is difficult to do with monthly data without some means to account for seasonality. We use one of the most widely-used seasonal adjustment procedures, Census X-11, which estimates the "typical" seasonal pattern of the series based on a number of years worth of data. It can also account for "trading day" effects—that is, if the day of the week has a consistent effect on the level of deliveries, this can be estimated from the monthly data. The X-11 procedure also allows for shifts in seasonal patterns over time, an evident characteristic of deliveries patterns for major petroleum products, and has means for discounting unusual "blips" in the data.

The seasonally-adjusted data make it possible to more easily compare adjacent months and make it more obvious when values are "off trend". For example, seasonally adjusted data help in determining whether, for example, an uncharacteristically large change in the current month's deliveries versus a year ago is the result of unusually high deliveries this year or unusually low deliveries last year—or both. Again, as with any statistical procedure, care should be taken; seasonal adjustment is most meaningful for products with stable seasonal patterns and without wide swings in levels over the most recent years. Thus, seasonal factors for gasoline are likely to be more reliable than for residual fuel oil.

Approaches Involving the "Fundamentals"

These time-series approaches by themselves are not enough; though we have found them to be helpful, they only rearrange the data in ways that make it easier to comprehend what is happening to the series itself. In addition to the time-series approach, it is also vital to analyze the "fundamentals" and alternative indicators of demand in an effort to get beyond the deliveries data and understand what is happening to actual usage.

For example, we estimate the relationship of weather to distillate deliveries from past data via a regression model, taking note of the shifts in the distribution of distillate fuel oil between heating and other uses over the years. Other indicators, such as truck and rail traffic in the case of distillates, or in the case of gasoline, personal income, miles traveled, trends in fleet fuel efficiency, all provide useful insights into consumption patterns and serve as a check on the validity of the deliveries data.

As one illustration of the latter, the kerosine jet fuel deliveries originally reported by the Department of Energy (DOE) in the 1987 *Petroleum Supply Monthly* appeared to be too low when compared with consumption trends as suggested by the growth in air traffic, even allowing for efficiency improvements as newer planes entered the commercial fleet. Subsequently, DOE found that imports, and thus deliveries, had been under-counted. Once DOE revised its data, the growth in kerosine jet fuel deliveries came much closer to the indicated growth in consumption, confirming that the estimated consumption trend was providing information that the deliveries data had not.

Awareness of a special development for a particular fuel also helps in determining whether a particular month's deliveries data represents a significant change in consumption patterns or only an aberration. For example, the surge in distillate deliveries this past March and the subsequent flaccid results for April are put into perspective when the change in diesel tax collection procedures that took effect April 1 is taken into account. Looking at seasonally- and weather-adjusted data, as discussed above, made the gyrations of distillate deliveries during that period even more apparent, and combined with the information on tax procedures, helped to show that this was related more to short-term nonprimary stock movements than to shifts in consumption.

When time-series and "fundamentals" approaches yield differing results, it is a sign that further analysis is needed as to whether the discrepancy arises from inappropriate assumptions or techniques, problems with the deliveries data, movements in nonprimary stocks, or other factors.

In conclusion, we believe the estimation of underlying trends in petroleum consumption is necessary in order to better interpret current developments in the light of available information. But the caveat is that this information is incomplete—assumptions need to be made, and novel situations may not necessarily conform to relationships based on historical experience. This means that conclusions drawn at one point may later turn out to be inaccurate, and that conclusions about trends that were seemingly apparent earlier must be modified in the light of new information. Nevertheless, we believe that the underlying trends are in many ways of much greater importance than the peculiarities that shape a single month's deliveries.